SHOUT
SHARE
IT

THE UNIVERSITY
OF ILLINOIS
LIBRARY
5805
FB
v.19

BIOLOGY
AUG 8 1939

Return this book on or before the
Latest Date stamped below.

University of Illinois Library

JUL 18 1956

APR 17 1959

10/29/73

OCT 23 1980

OCT 26 1980

OCT 30 1980

NOV 3

12·1·80

L161—H41

THE AMERICAN SPECIES OF PASSIFLORACEAE

BY

ELLSWORTH P. KILLIP

ASSOCIATE CURATOR, DIVISION OF PLANTS
UNITED STATES NATIONAL MUSEUM

THE LIBRARY OF THE
APR 11 1938
UNIVERSITY OF ILLINOIS

BOTANICAL SERIES
FIELD MUSEUM OF NATURAL HISTORY
VOLUME XIX, PART I
MARCH 31, 1938

PUBLICATION 407

PRINTED IN THE UNITED STATES OF AMERICA
BY FIELD MUSEUM PRESS

580.5
F.B
V. 19
Biology

CONTENTS

PAGE

List of illustrations 5
Introduction 7
Historical survey 8
Varying concepts of classification 8
General morphology 11
Economic uses 18
General remarks 19
List of abbreviations for herbaria cited 20
Bibliography 22
Systematic treatment 23
List of exsiccatae 582
Index 602

1056909

LIST OF ILLUSTRATIONS

TEXT FIGURES

PAGE

1. a, *Passiflora vitifolia;* b, *P. andina;* c, *P. foetida* var. *santiagana* 13

2. a, *Passiflora heterohelix* (natural size); b, *P. gracillima* (natural size); c, *P. nitida* 15

THE AMERICAN SPECIES OF PASSIFLORACEAE

ELLSWORTH P. KILLIP[1]

INTRODUCTION

Passionflowers have always had great popular appeal. Early Spanish missionaries to the New World saw in the corona, the long-stalked ovary, surmounted by three styles, and the stamens a resemblance to the Crucifixion, and from this came the popular and scientific name. Drawings and descriptions of these "marvellous" flowers were taken back to Europe, and as early as 1610 Jacomo Boscio presented the Flos Passionis to the world as "the most wondrous example of the *Croce trionfante* discovered in forest or field." (See *Plant lore, legends, and lyrics*, by Richard Folkard, Jr., London, 1884, portions of which are reproduced in Bailey's *Standard Cyclopedia of Horticulture*.)

The present paper had its beginning in an attempt to present a taxonomic revision of the Mexican and Central American species of *Passiflora*. Before that was completed, however, I had opportunities for field work in parts of South America in which the genus was abundantly represented. The study of the material obtained on these expeditions and the incidental identification of other South American specimens, as well as material from the West Indies, led to an enlargement of the scope of the original project, to include all of the American Passifloraceae.

Masters' monograph of the family in *Flora Brasiliensis* (1872) was a thorough elaboration of the American species known at that time. Since then, about 250 New World species have been proposed, but except for Harms' necessarily brief survey in the second edition of *Die natürlichen Pflanzenfamilien* no attempt has been made to bring together in a single treatment these recently described species, so as to establish their relationship with each other and with earlier ones. Moreover, the intensive exploration of tropical America in the last 50 years, especially in Mexico, Central America, and the Andes, has resulted in the acquisition of a large amount of herbarium material, so that there is now a far more accurate understanding of the species than was possible in Masters' time.

The present survey deals with native species, and I have given little attention to the numerous hybrids developed in horticulture,

[1] Published by permission of the Secretary of the Smithsonian Institution.

to many of which specific names have been assigned. Masters has given a list of the species cultivated in European gardens (Journ. Hort. Soc. n. s. 4: 125, sq. 1877), and in Bailey's *Standard Cyclopedia* (p. 2486) there is an extensive discussion of horticultural hybrids.

HISTORICAL SURVEY

Because of the striking appearance of the flowers and the unusual shape of the leaves, Passifloraceae have long been a favorite subject of study for botanists. Throughout the works of the pre-Linnaean authors, as Hernández, Pluckenet, Plumier, and Tourneforte, are to be found descriptions and illustrations of passionflowers. In an account of *Passiflora* by Hallman in Linnaeus' *Amoenitates* (1749), 22 passionflowers are treated. In the *Species Plantarum* (1753) Linnaeus described 24 species, a number which was increased to 35 by Lamarck (1789). The first extensive monograph of the family was published by Cavanilles in 1790 (Diss. 10), 43 species being here treated, of which 32 were figured. In 1805 Jussieu described (Ann. Mus. Hist. Nat. 6: 102–116, 388–396) 13 new species, and discussed in detail some of the generic problems connected with this group. In Rees' *Cyclopedia* (1819) 55 species were included. Drawings of 25 species, unaccompanied by descriptions, appeared in Velloso's *Flora Fluminensis* (vol. 9, 1827). There were about 145 American species in De Candolle's *Prodromus* (1828), and in Roemer's synopsis of the family (1846) about 225 New World species were listed as valid. The most extensive studies of the family were those made by Masters, who, until his death in 1907, was the recognized authority upon the subject. His monograph of the American species in *Flora Brasiliensis* (1872), a synopsis of which appeared the preceding year, contained 202 species. An account of the Colombian species by Triana and Planchon (Ann. Sci. Nat. V. Bot. 17: 121–186. 1873) discusses the collections of Lehmann, André, Stübel, and Weberbauer; and others by Masters and by Harms, a survey of the Ecuadorean tacsonias by Sodiro (1903), and numerous papers by Harms and myself, all have made known many additional species. In the present monograph 355 species of *Passiflora* and 10 belonging to smaller genera are recognized, of which 17 are now proposed for the first time. In a few species there are one or two varieties or forms. *Passiflora foetida* has 37 varieties, 13 of them now newly described.

VARYING CONCEPTS OF CLASSIFICATION

Passifloraceae consists of 12 genera, four of which are found in the New World. Of the strictly Old World ones, *Crossostemma*,

Schlechterina, and *Machadoa* are monotypic African genera; *Deidamia*, with about 8 species, and *Tryphostemma*, with about 30, likewise are wholly African. *Adenia*, the largest of the Old World genera, contains approximately 80 species, most of which are restricted to Africa, though a few occur in tropical parts of Asia and on the South Pacific islands. *Hollrungia* and *Tetrapathaea*, both monotypic genera, are found in New Guinea and New Zealand, respectively. In *Passiflora*, by far the most important genus of the family, less than 40 of the nearly 400 known species are endemic to the Old World; these, with the possible exception of one species in Madagascar, are known only from Asia and the South Pacific islands, and the genus is, therefore, primarily one of the New World. *Mitostemma*, with three species, and *Dilkea*, with five, are restricted to South America. *Tetrastylis* contains one Central American and one Brazilian species.

The families Malsherbiaceae and Caricaceae were united to Passifloraceae by early authors, but they are now considered distinct. In the following brief review of the genera and groups into which the family has at various times been divided, those genera that properly are referable to Malsherbiaceae or to Caricaceae are not included, nor are the Old World groups of Passifloraceae considered.

All the passionflowers were placed by Linnaeus in *Passiflora*. In 1787 Medicus created the genus *Cieca* for the apetalous species, and revived Tourneforte's names *Murucuja* and *Granadilla* for two additional genera. In 1789 (Gen. Pl. 398) Jussieu added another genus of Tourneforte's, *Tacsonia*, but he did not recognize *Cieca*. These three genera, *Passiflora*, *Murucuja*, and *Tacsonia*, were maintained by Persoon (Syn. Pl. 2: 219. 1807).

In 1819 (Ann. Gén. Soc. Phys. Brux.) Bory St. Vincent proposed three additional segregates of *Passiflora*, viz., *Asephananthes*, *Monactineirma*, and *Anthactinia*. In 1822 (Mém. Soc. Phys. Genève 1: 434–443) De Candolle, accepting the generic concepts of Jussieu and of Persoon, subdivided *Passiflora* into seven sections: *Astrophea*, *Polyanthea*, *Tetrapathaea*, *Cieca*, *Decaloba*, *Granadilla*, and *Dysosmia*. This treatment was followed in the *Prodromus*, an eighth section, *Tacsonioides*, being added to *Passiflora*, and *Murucuja* and *Tacsonia*, with two and four sections, respectively, being given generic rank.

In 1846 Roemer, evidently with an extremely narrow concept of a genus, raised to generic rank all of De Candolle's sections. But in placing the species Roemer unfortunately showed a lack of knowledge of their characters, many being assigned to certain "genera" without apparent justification.

Bentham and Hooker adopted De Candolle's treatment, though reducing *Murucuja* to a section of *Passiflora*.

In a paper in the *Transactions of the Linnaean Society*, issued the year before his monograph in the *Flora Brasiliensis* appeared, Masters recognized three genera, viz., *Passiflora*, *Tacsonia*, and *Dilkea*, the last being proposed at that time on the basis of recent collections from northern South America. He divided *Passiflora* into four subgenera: *Astrophea*, *Plectostemma* (including the sections *Cieca*, *Dysosmia*, and *Decaloba*), *Murucuja* (including the sections *Eumurucuja* and *Psilanthus*), and *Granadilla*. In *Tacsonia* he recognized two sections, *Bracteogama* and *Eutacsonia*.

This early paper, in so far as it applied to New World species, was merely a synopsis of the forthcoming monograph, and many new species were mentioned by name only; in order not to burden the synonymy in the present monograph I have not cited this first use of such names. The new combinations here made date, of course, from this earlier paper.

In their monograph of the Colombian Passifloraceae (1873) Triana and Planchon maintained but one genus, *Passiflora*, which they divided into five subgenera: *Tacsonia*, *Granadilla*, *Plectostemma*, *Murucuja*, and *Astrophea*.

Within the next few years two new genera, *Tetrastylis* and *Mitostemma*, were described from Brazil.

In the first edition of *Die natürlichen Pflanzenfamilien* Harms recognized four New World genera: *Dilkea*, *Mitostemma*, *Tetrastylis*, and *Passiflora*. *Tacsonia* and *Murucuja* here constituted sections of *Passiflora*, together with *Astrophea*, *Decaloba*, *Cieca*, *Psilanthus*, *Granadilla*, and *Dysosmia*. Harms' careful analysis of the family in the second edition of this work is by far the most satisfactory treatment of the subdivisions of *Passiflora*. The genus here is divided into 21 sections, 18 of which are represented in America, the sections often being subdivided into subsections or series.

In the present paper the treatment of genera and subdivisions closely approximates that of Harms though (it is interesting to note) much of the material was prepared prior to the appearance of his latest revision.

The most important divergence lies in the raising of *Tetrastylis* to generic rank, and in the regrouping of the species placed by Harms in the sections *Decaloba* and *Cieca*. I have, moreover, raised most of Harms' sections to subgenera.

GENERAL MORPHOLOGY

In view of the thorough treatments of the morphology, organogeny, minute anatomy, and fertilization of the flower presented by Masters and by Harms, it seems unnecessary at this time to do more than discuss in a general way the vegetative and floral parts of the American Passifloraceae, mainly with a view to a proper understanding of the terms used in the keys and descriptions. Details of the floral structure are shown in Figures 1 and 2.

Habit.—Most of the passionflowers are herbaceous or woody vines, climbing by means of tendrils, or subscandent shrubs. Some species of the subgenus *Astrophea* are true shrubs or low trees, and in *Dysosmia* two species are low, spreading shrubs.

Stem.—The stem is terete or 3–5-angled. In *Plectostemma* it is usually longitudinally striate and often deeply grooved; in *Granadilla* it is terete or quadrangular.

Tendrils.—The tendrils are usually solitary in the axils of the leaves. In a few species they terminate the peduncles, and in one species some of the tendrils are axillary and some develop from a flowerless fork of a bifurcate peduncle.

Stipules.—The stipules vary from setaceous to broadly ovate, and constitute an excellent mark of distinction between groups of species. Their margin usually is entire in *Plectostemma* and *Murucuja*, entire or toothed in *Granadilla* and *Tacsonia*, and deeply cleft in *Dysosmia*. In *Astrophea* the stipules are setaceous, or at most narrowly linear, and soon deciduous. In several species of *Granadilla* with foliaceous stipules, the stipule is attached on one side slightly above its base. In the measurement of the stipules given in this paper the term "length" is always applied to the longest dimension, even though this may not be the distance from the point of attachment of the stipule to its margin.

Leaves.—The leaves are always alternate, but probably in no group of plants is their shape more striking or the variation in outline of those of a single plant more extreme than in *Passiflora*. Especially is this true of the small-flowered vines of *Plectostemma* and the showier-flowered murucujas. The leaves may be undivided and transversely elliptic, orbicular, narrowly linear, or broadly ovate; or bilobed with widely spreading or erect lobes; or 3–5-lobed; or, in the case of a few species, compound. The margin is usually entire, though in several species it is toothed or even pectinate. The leaves are predominantly 3-nerved or obscurely 5-nerved, the

nerves reaching to the margin, and often terminating in a mucro. In *Astrophea* and in a few species of other subgenera the leaves are penninerved. In the present paper I have treated the petioles in a clause separate from the leaves, because of the frequent necessity of giving a lengthy description of petiolar glands.

Foliar and bracteolar glands.—In all but a few species nectar-secreting glands are present in some form, either as protuberances on the petioles or along the margin of the bracts, or as ocellae on the under surface of the leaves. The presence or absence of these glands on the petiole, and their shape, position, and number constitute important points of difference between species and groups of species. In *Plectostemma* there is a close correlation between the presence or absence of petiolar glands and the sculpturing of the seeds, and upon these characters, rather than upon the presence or absence of petals and the floral arrangement, are based the main sections of this subgenus in the present treatment.

Peduncles.—In most species the peduncles are borne singly or in pairs in the leaf axils, and are 1-flowered. Among exceptions to this are: *P. multiflora* and a few species of *Astrophea* in which the flowers are fascicled; *P. racemosa* and certain members of *Astrophea* with a racemose or a pseudoracemose inflorescence; other species of *Astrophea* in which the peduncles are one or more times dichotomous; the subgenera *Tryphostemmatoides*, *Deidamioides*, and *Polyanthea*, and one section of *Astrophea*, in which the peduncles terminate in a tendril and are 2-flowered; and seven representatives of *Plectostemma* in which the peduncles have two or more flowers. Occasionally the peduncles are borne in pairs on short, more or less leafy, axillary branches which usually bear stipules and terminate in a growing bud, a condition not to be confused with a true compound inflorescence.

Bracts.—Except for a few species of *Plectostemma*, bracts are present, though sometimes they are early deciduous. Their shape and size and their position on the peduncle constitute a most important character for the differentiation of subgenera, sections, and species. In all bracteate species of *Plectostemma*, with the exception of those of the small sections *Pseudogranadilla* and *Hahniopathanthus*, the bracts are narrowly linear to setaceous, and are scattered along the peduncle, a condition also found in *Murucuja* and its allied subgenera and in *Astrophea*. In *Granadilla* and *Tacsonia* and their relatives and in two sections of *Plectostemma* the bracts are generally conspicuous, leaflike, or sometimes highly colored, and form an

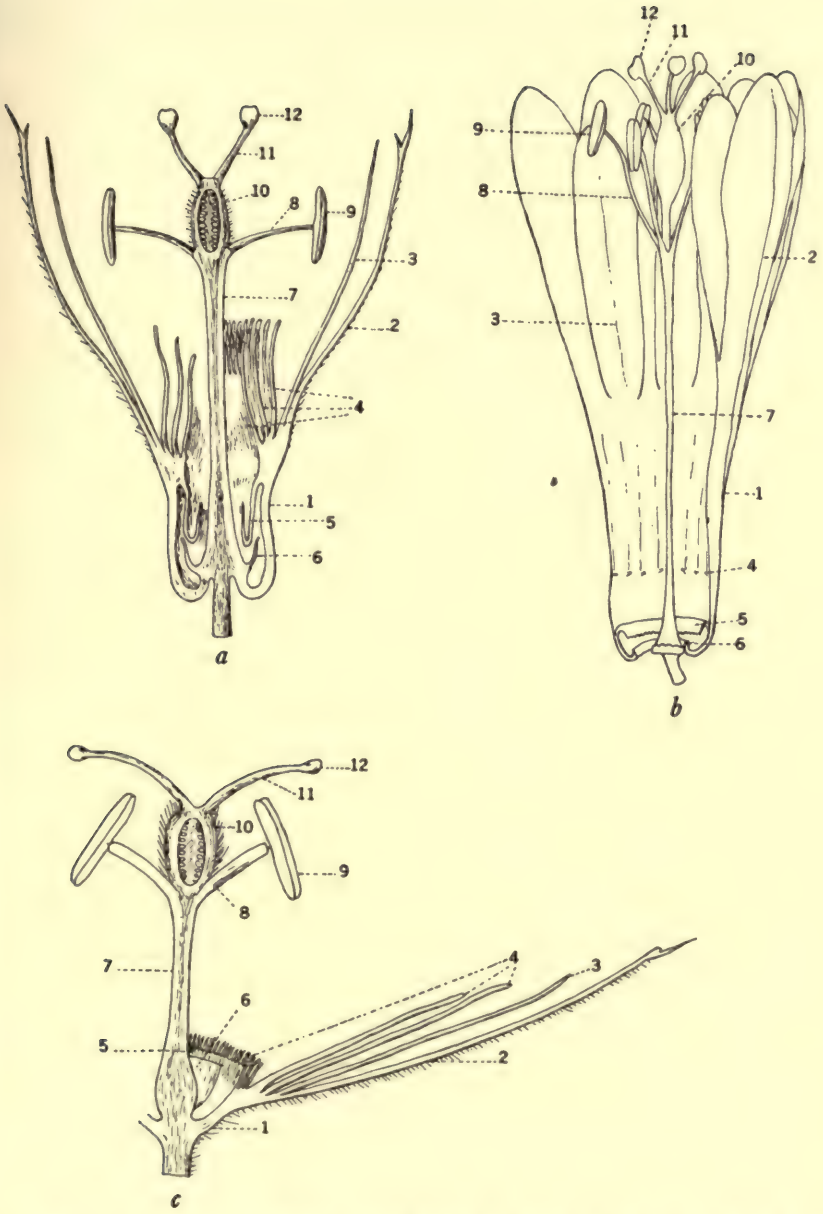

FIG. 1. *a*, *Passiflora vitifolia* (from Mart. Fl. Bras. 13, pt. 1: *pl. 121*); *b*, *P. andina* (from Journ. Linn. Soc. 20: *pl. 19*); *c*, *P. foetida* var. *santiagana*. *a*, *b*, and *c*: 1, calyx tube; 2, sepals; 3, petals; 4, corona; 5, operculum; 6, limen; 7, gynophore; 8, filament; 9, anther; 10, ovary; 11, style; 12, stigma.

involucre near the base of the flower. Usually in these groups they are distinct to the base, though in a few species they are partially connate. In *Dysosmia* they are involucrate, and are pinnatisect into filiform, gland-tipped divisions.

Calyx tube.—Writers differ in the use of a term for this part of the flower. Masters calls it "flower tube," designating the upper free portion as sepals. Harms uses the term receptacle. In the present paper it is considered the calyx or calyx tube; the upper free part, the sepals rather than the lobes. The calyx is bowl-shaped or cup-shaped (*Tetrastylis* and the subgenera *Plectostemma, Tryphostemmatoides, Granadilla, Dysosmia,* and *Adenosepala*), campanulate or tubular-campanulate (*Murucuja* and *Pseudomurucuja*), short-tubular (*Chloropathanthus, Distephana,* in greater part, *Granadillastrum, Calopathanthus* and *Astrophea,* in part), or long-cylindric (*Psilanthus, Tacsonia* and allies, and *Astrophea,* in part). In species with a small calyx tube this is usually green or greenish; in those with a well developed tube it is nearly always highly colored, red, pink, purple, or orange, rarely pure white. *Mitostemma* and *Dilkea* have a much reduced calyx; in the latter the sepals are at first united into a tube, but soon separate.

Sepals.—There are five sepals in *Passiflora* and *Tetrastylis,* four in *Mitostemma,* and four, or perhaps sometimes five, in *Dilkea.* They vary from linear to broadly ovate, and ordinarily are the color of the calyx tube. In many species of *Granadilla* and *Tacsonia* they are dorsally keeled, the keel terminating in an awn.

Petals.—Petals are absent in *Chloropathanthus* and in a few species of *Plectostemma.* In *Rathea* they are attached below the mouth of the tube. In *Tacsoniopsis* the tube has a well developed limb, the petals being inserted at its margin. In all other petaliferous species they are borne at the margin of the tube, alternately with the sepals. They are white, greenish, or yellowish in most species of *Plectostemma,* usually highly colored in *Murucuja, Pseudomurucuja, Granadilla,* and *Tacsonia.* The petals are ordinarily smaller than the sepals and of a much thinner texture. In drying they often adhere so closely to the sepals that they are overlooked.

Corona.—The inside of the calyx tube, from its margin to the base of the gynophore, bears a series of processes, arranged usually in rings, one within the other. Not until Masters' time does the importance of these processes as diagnostic characters appear to have been fully appreciated, but in all recent treatments of the

FIG. 2. *a*, *Passiflora heterohelix* (natural size); *b*, *P. gracillima* (natural size); *c*, *P. nitida*: 1, calyx tube; 2, sepals; 3, petals; 4, corona; 5, operculum; 6, limen; 7, gynophore; 8, filament; 9, anther; 10, ovary; 11, style; 12, stigma (from Mart. Fl. Bras. 13, pt. 1: *pl. 118*).

family they are recognized as of primary importance in distinguishing species and groups of species. Various terms have been used to designate these series of processes. Sowerby (Trans. Linn. Soc. 2: 19. 1794) called them principal rays, imperfect rays, operculum, and nectary. Masters considered the several layers as parts of a corona. The nomenclature adopted by Harms seems the most satisfactory, and is the one used in this paper. The differences in the terminology used by Masters and by Harms may be shown thus:

MASTERS	HARMS
Faucial corona, Supramedian corona	Corona
Middle (or membranous) corona	Operculum
Inframedian corona	Nectar ring
Basal corona	Limen

The corona usually consists of numerous threadlike processes (often differently colored than the floral envelope), arranged in from one to several series, the outermost attached at the edge of the calyx tube just inside the sepals and petals. Whether these threads are filiform, liguliform, or spatulate, straight or falcate, terete or angled is important as a mark of specific distinction. In all but one species of *Plectostemma*, in *Pseudomurucuja* and *Psilanthus*, and in a few species of *Tacsonia* the corona consists of free filaments, arranged in one or two series, the second series, if present, being composed of much shorter threads. In *Granadilla* the elongate filaments occur either in a single series or in two series, and are usually succeeded by shorter threads or by tubercle-like processes which may not be arranged in definite rows. In *Granadillastrum* and *Tacsonioides* the filaments are in three or more ranks; in *Astrophea* the outer filaments are usually much dilated in their upper half, and are followed by one or more series of very short threads. In *Murucuja* the corona is a membranous tube about the gynophore. *Distephana* has a 2–3-ranked corona, the outer rank or ranks being filamentose, the inner one tubular. In most species of *Tacsonia* the filaments are reduced to short, tuberculiform processes, in one or two series. In *Dysosmia* and *Dysosmioides* there are two to four series of radiate filaments followed by several rows of minute threads.

Operculum.—The operculum presents great diversity of form, and is of prime importance in the differentiation of subgenera. In the subgenus *Astephia* and in *Mitostemma* and *Dilkea* it is wanting. In *Plectostemma* it is always a folded or plaited membrane, its margin, usually slightly incurved toward the gynophore, being entire, minutely crenulate, or serrulate. In *Tryphostemmatoides* it is a

thin, nonplicate membrane. In *Dysosmia* it is nonplicate, and the margin is denticulate. In *Pseudomurucuja* the operculum is borne at the top of the tube and is dependent. In *Murucuja, Tacsonia, Granadillastrum,* and *Distephana* it arises near the base of the tube and is dependent or at least is strongly inclined inward, the margin often being erect. In *Calopathanthus, Chloropathanthus, Psilanthus, Tacsonioides,* and *Astrophea* it is erect, usually being fringed or cleft partway. It is in *Granadilla* that the operculum exhibits the greatest diversity, varying from a single row of free filaments to a fringed or an entire membrane.

Nectar ring.—This is a low, narrow ring on the floor of the tube within the operculum. In some species it is wanting.

Limen.—In most of the species of *Plectostemma* the limen is similar to the nectar ring within which it is situated. In a few species of this subgenus it has the form of a thin membrane attached to the floor of the tube at the base of the gynophore and more or less adnate to the floor except at the margin. In *Dysosmia* and in many species of *Granadilla* it is a cup-shaped membrane with a flaring margin, closely surrounding the base of the gynophore. Like the nectar ring, it is absent in many species.

Genital organs.—In the subgenus *Apodogyne* and sometimes in *P. apoda* the ovary is sessile, the stamens being borne upon the floor of the calyx close to the base of the ovary. In all other species of *Passiflora* and in *Tetrastylis* the stamens and the ovary are raised upon a gynophore. The filaments are united in their lower part to form a tubular membrane closely adherent to the gynophore. In *Passiflora* the gynophore is straight, and the filaments are free from their tips to their point of separation from the gynophore. In *Tetrastylis* the gynophore is curved, and the stamens are united beyond it, only their tips being free. In these two genera there are five stamens. *Mitostemma* and *Dilkea* have 8 or 10 stamens, and these are inserted on the calyx close to the base of the gynophore. In all four genera the filaments are attached at or below the middle of the back of the 2-celled anthers.

The ovary, borne just above the stamens, is globose, ovoid, or ellipsoidal. Generally it is terete, but in *Astrophea* and a few species of other groups it is trigonous, or occasionally hexagonal. In *Astrophea* it is broadly truncate at the apex, the styles projecting from the angles at the top of the ovary, as also in some species of *Distephana.* In *Tacsonia* and related groups the ovary usually tapers to the styles, which are free to their base. In *Plectostemma* and

in most species of *Granadilla* the styles project at the center of the top of the ovary, often being more or less united toward their base.

Fruit.—In *Plectostemma* the fruit is usually a globose berry, not more than 2 cm. in diameter, dark blue or black when ripe, containing an acidulous, watery, or mucilaginous pulp, surrounded by a parchment-like skin. In *Dysosmia* the fruit is somewhat larger, and red or yellow when mature, the outer wall being hard and brittle. The fruit of *Granadilla* varies in size from a crab apple to a small melon. Its walls are thin-skinned, hard-shelled, or rindlike.

Seeds.—The seeds are usually much compressed, and have a hard, bony testa. Seed characters of Passifloraceae have been too little regarded by students. Early in my studies my attention was brought to the large seed collection assembled by Mr. Homer Skeels, of the U. S. Department of Agriculture, in which *Passiflora* was well represented. At the outset it was obvious that the seeds fell into two main groups, those with a series of transverse ridges and grooves and those that were reticulated or pitted. Searching for other characters that might be correlated with these differences, I found that in general the species with glandless petioles had transversely grooved seeds and those with glanduliferous petioles, reticulate or pitted seeds. Except for the section *Hahniopathanthus* this correlation was almost perfect for the subgenus *Plectostemma;* it also held for *Murucuja* and the subgenera separated from it, and for *Psilanthus*. Unfortunately, well developed seeds of many species belonging to groups with showy flowers and rather large fruits, such as *Tacsonia*, *Granadilla*, and *Astrophea*, are not available, so it has not been possible to carry these studies as far as desirable. The extent to which this correlation exists may be observed by noting the descriptions of the petioles and seeds in the accompanying diagnoses of the subgenera of *Passiflora*.

ECONOMIC USES

Many of the species of *Passiflora* are of economic importance because of the quality of their fruit, their adaptability for cultivation as ornamental vines, or their medicinal properties. *Passiflora quadrangularis*, *P. ligularis*, *P. edulis*, *P. maliformis*, and *P. laurifolia* are the most important species with edible fruits. The leaves of *P. mexicana* and *P. holosericea* serve as a substitute for tea in some places. The root of *P. foetida* is used as an antispasmodic. It is said that the root of *P. quadrangularis* is anthelmintic, containing a substance called in certain localities "passiflorine," which possesses lethargic properties. In Guatemala an infusion of the seeds of *P.*

coriacea is used to kill "chuchus." Other uses are mentioned in connection with the individual species.

An interesting account of the cultivation of passion fruits is given by W. T. Pope (Hawaii Agr. Exp. Sta. Bull. 74, 1935), with a list of 18 papers on this subject.

GENERAL REMARKS

A study of Passifloraceae should be profusely illustrated. To convey in words an accurate picture of the complicated flower structure and the curious shape of the leaves is difficult. And only a colored illustration can give any real idea of a living passionflower. To appreciate this one has but to glance through the *Botanical Magazine* and contrast the prosaic words of formal description with the gorgeous reproductions accompanying them. My colleague, Mr. E. C. Leonard, has generously prepared a few illustrations for this paper, and for these I am very grateful. In an attempt to offset this deficiency I have included in the treatment of the species lists of the more important illustrations. In this connection mention should be made of the superb paintings made under the direction of Mutis for a flora of Colombia, which are preserved in the Jardín Botánico, Madrid. Many of the color details given in the following descriptions I have derived from these paintings.

During the course of these studies I have had unusual opportunities to become acquainted with passionflowers both in their native surroundings and in herbaria. Three major field trips, two of them to Colombia and one to Peru and Amazonian Brazil, and shorter expeditions to Cuba, Jamaica, Panama, and Curaçao have enabled me to study living plants of about 90 different species. During these travels I have had the privilege of examining herbaria rather infrequently visited by North American botanists—such as those at the Museu Goeldi, Pará; the Instituto de La Salle, Bogotá; the Colegio de La Salle and the Academy of Sciences, Havana; and Hope Gardens, Jamaica. On visits to Europe in 1925, 1932, and 1935 I was able to study the rich collections at the Royal Botanic Gardens, Kew; the British Museum (Natural History); the Linnean Society; the Muséum d'Histoire Naturelle, Paris; the Jardín Botánico, Madrid; the Jardin Botanique and the Boissier Herbarium, Geneva; the Naturhistorisches Museum, Vienna; the Botanisches Museum, Berlin; the Jardin de l'Etât, Brussels; and the University of Utrecht. Many specimens from these herbaria were lent me for more thorough study in Washington. Through loans the greater part of the American Passifloraceae in the Riksmuseet, Stockholm; Universitetets

Museum, Copenhagen; the National Herbarium of Colombia; the British Guiana Botanic Gardens; and the Trinidad Herbarium have been available. I have also had the privilege of consulting the collections in this country, such as those at Field Museum of Natural History, the New York Botanical Garden, the Gray Herbarium and the Arnold Arboretum of Harvard University, the Academy of Natural Sciences (Philadelphia), the University of Pennsylvania, the Carnegie Museum, the Missouri Botanical Garden, the University of Michigan, the University of Minnesota, the University of California, Pomona College, and the California Academy of Sciences. To those in charge of all these collections and to the very helpful members of their staffs I wish to express my deepest gratitude. I am under special obligations to Dr. H. Harms, the eminent student of Passifloraceae, for invaluable aid in these investigations. Brother León, of Havana; Dr. Adolpho Ducke, of Rio de Janeiro; and Mr. N. Y. Sandwith, of Kew, have most generously sought in the field or in herbaria special information for me. Finally, I wish to extend my best thanks to those collectors whose names are familiar in the field of tropical American botany and who have made special effort to obtain material for me—to men resident in tropical America, such as H. Pittier, O. Buchtien, F. L. Herrera, A. Weberbauer, E. Pérez Arbelaez, C. A. Purpus, S. Calderón, Father Mille, and Brothers Apollinaire Marie, Elias, and Daniel, and to those who have been members of expeditions from the United States.

A list of all herbaria consulted, with the corresponding abbreviation by which they are indicated in the citation of specimens, follows:

LIST OF ABBREVIATIONS FOR HERBARIA CITED

A. Arnold Arboretum of Harvard University

B. Botanisches Museum, Berlin-Dahlem

Bas. H. W. Bassler Herbarium, consulted at Iquitos, Peru; now on deposit at the New York Botanical Garden

BG. Botanic Gardens, Georgetown, British Guiana

BM. British Museum (Natural History)

Bo. Boissier Herbarium

Bog. Instituto de La Salle, Bogotá

Brux. Jardin de l'Etât, Brussels

BW. Willdenow Herbarium, Botanisches Museum, Berlin

Cal. University of California

CAS. California Academy of Sciences

CM. Carnegie Museum
Cop. Universitetets Botaniske Museum, Copenhagen
CU. Catholic University of America
F. Field Museum of Natural History
G. Gray Herbarium of Harvard University
Gen. Conservatoire et Jardin Botaniques, Geneva
Go. Goeldi Museum, Pará
Gt. University of Göttingen
HA. Academy of Sciences, Havana
HNC. Herbario Nacional de Colombia, Bogotá
HS. Colegio de La Salle, Havana
HV. Agricultural Experiment Station, Santiago de Las Vegas, Cuba
J. Hope Gardens, Jamaica
K. Royal Botanic Gardens, Kew
Leid. Rijks Universiteit, Leiden
Linn. Linnean Herbarium, London
Ma. Jardín Botánico, Madrid
Mich. University of Michigan
Minn. University of Minnesota
Mo. Missouri Botanical Garden
N. United States National Museum
NA. National Arboretum, Washington, D.C.
P. Muséum d'Histoire Naturelle, Paris
Penn. University of Pennsylvania
Ph. Academy of Natural Sciences, Philadelphia
Po. Pomona College
Pr. Národní Museum, Prague
Roch. Rochester Academy of Science
S. Riksmuseet, Stockholm
SU. Stanford University
T. Department of Agriculture, Port-of-Spain, Trinidad
Up. Universitetets Botaniska Trädgård, Uppsala
Ut. Rijks Universiteit, Utrecht
V. Naturhistorisches Museum, Vienna
Y. New York Botanical Garden

BIBLIOGRAPHY

Only the more important references are here included; papers containing solely descriptions of new species are omitted.

Bailey, Stand. Cycl. Hort. 1916.

Barbosa Rodriguez, Hortus Fluminensis 183–186. 1893.

Bentham and Hooker, Gen. Pl. 1: 807–816. 1862.

Bory de St. Vincent, Sur les grenadilles ou passionaries, Ann. Gén. Soc. Phys. Bruxelles 2: 129–156. 1819.

Britton, Passiflora in Cuba, Bull. Torrey Club 44: 15–20. 1917.

Britton and Wilson, Sci. Surv. Porto Rico & Virgin Is. 5: 600–604. 1923.

Calderón, Passifloras dilobatas de El Salvador.

Cavanilles, Dissertatio (10) de Passiflora 439–463. *pl. 265–296.* 1790.

Chodat, Bull. Herb. Boiss. 7: 74–76. 1899.

Chodat and Hassler, Plantae Hasslerianae, Bull. Herb. Boiss. II. 2: 743–745. 1902; 3: 1126–1127. 1903; 4: 61–63. 1904.

De Candolle, Mém. Soc. Phys. Genève 1: 434–436. 1822.

——— Prodr. 3: 321–336. 1828.

Don, Hist. Dichl. Pl. 3: 45–59. 1834.

Fawcett and Rendle, Flora of Jamaica 5, pt. 3: 232–243. 1926.

Gontscharow, Ad cognitionem Passifloracearum brasiliensium, Bull. Jard. Prin. U.S.S.R. 26: 556–562. 1927.

Grisebach, Fl. Brit. West Indies 290–296. 1864.

Harms in Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 67–92. 1893; ed. 2, 21: 470–507. 1925.

——— (Plantae Lehmannianae in Colombia et Ecuador) Bot. Jahrb. 18: Beibl. 46: 1–14. 1894.

——— Neue Arten der Gattung *Passiflora* L., Repert. Sp. Nov. 18: 294–299. 1922.

——— Beiträge zur Kenntnis der amerikanischen Passifloraceen—I, Repert. Sp. Nov. 19: 25–32. 1923; II, op. cit. 56–60.

——— Passifloraceae americanae novae, Notizbl. Bot. Gart. Berlin 10: 808–816. 1929.

Herrera, Passifloraceae cuzcoenses Novas, Rev. Chil. Hist. Nat. 34: 249–253. 1930.

Jussieu, Sur quelques nouvelles espèces du genre *Passiflora,* Mém. 1, Ann. Mus. Hist. Nat. 6: 102–116. 1805; Mém. 2, op. cit. 388–396.

Killip, *Tetrastylis,* a genus of Passifloraceae, Journ. Wash. Acad. Sci. 16: 365–369. 1926.

——— in Standley, Flora of the Panama Canal Zone, Contr. U. S. Nat. Herb. 27: 275, 276. 1928.

——— Passifloraceae of the Mayan region, Carnegie Inst. Wash. Publ. 461: 299–328. 1936.

Lamarck, Encycl. Meth. 3: 32–42. 1789.

Lindman, Zur Kenntnis der Corona einiger Passifloren, Bot. Stud. till. Kellmann 55–79. 1906.

Linnaeus, Amoen. Acad. (*Passiflora* by J. G. Hallman) 244–279. 1749; ed. 3, 211–236. 1787.

——— Species Plantarum 955–960. 1753.

Masters, Contributions to the natural history of the Passifloraceae, Trans. Linn. Soc. 27: 593–645. 1871.

——— (Passifloraceae) in Mart. Fl. Bras. 13, pt. 1: 531–627. *pl. 106–128.* 1872.

——— Journ. Hort. Soc. n. s. 4: 125, sq. 1877.

Masters, On the Passifloreae collected by M. Edouard André in Ecuador and New Granada, Journ. Linn. Soc. 20: 25–44. 1883.

——— New Passifloreae, Journ. Bot. Brit. & For. 21: 33–36. 1883.

——— Notes on certain Passifloreae from western tropical America, Journ. Bot. Brit. & For. 23: 113–116. 1885.

——— Plantae Lehmannianae . . . Passifloraceae, Bot. Jahrb. 8: 216–220. 1887.

Medicus, Malvenfam. 96–99. 1787.

Miller, Gard. Dict. ed. 8, 1768.

Plukenet, Alm. Bot. 281–283. 1796.

Plumier, Description des plantes de l'Amérique 62–76. *pl. 79–90.* 1793.

——— Plantarum Americanarum, ed. Burmann 128–130. *pl. 138.* 1755.

Pulle, Enum. Pl. Surinam 320, sq. 1906.

Rafinesque, Fl. Tellur. 4: 102–104. 1838.

Roemer, M., Synopsis monographica Peponiferarum . . . Passifloracearum, Fam. Nat. Syn. 2: 125–207. 1846.

Smith, J. E., in Rees, Cycl. 26. 1819.

Sodiro, Tasconias Ecuatorianas, Anal. Univ. Quito 18: 333–348, 407–417; Rev. Chil. Hist. Nat. 11: 137, 159. 1907.

Standley, Flora of Costa Rica, Field Mus. Bot. 18: 727–733. 1937.

Triana and Planchon, (Prodromus Florae Novo-Granatensis) Ann. Sci. Nat. V. Bot. 17: 121–186. 1873.

Velloso, Flora Fluminensis, Icones, 9: *pl. 70–95.* 1827; Textus, Archiv. Mus. Nac. Rio de Janeiro 5: 376–381. 1881.

Walpers, (Passifloreae) Repert. 2: 218–222. 1843.

SYSTEMATIC TREATMENT

KEY TO GENERA

Stamens 5, in all but 2 species borne on a well developed gynophore; sepals 5; petals (if present) 5.

Gynophore straight; stamens free from their tips to the gynophore; styles 3 ..... 1. *Passiflora.*

Gynophore curved; stamens united beyond the gynophore, only their tips free; styles 4 ..... 2. *Tetrastylis.*

Stamens 8 or 10, inserted on the floor of the calyx; sepals and petals 4, rarely 5.

Styles distinct to the base; sepals from the first free nearly to the base, the calyx very small ..... 3. *Mitostemma.*

Styles united below the middle; sepals at first more or less united below the middle to form a tube, later separating . . 4. *Dilkea.*

1. PASSIFLORA L. Sp. Pl. 955. 1753.

Herbaceous or woody vines, usually climbing by tendrils, rarely erect herbs, small trees, or shrubs; leaves alternate (in American species), petiolate, simple or compound, lobed or unlobed, the petiole often glanduliferous; inflorescence axillary, simple or occasionally

compound; bracts small and dissitate or large and involucrate; flowers hermaphrodite (in American species), regular, often highly colored; calyx tube patelliform, campanulate, funnelform, or cylindric; sepals 5, fleshy or membranous, often dorsally corniculate or aristate just below the apex; petals 5, membranous, alternate with the sepals, sometimes wanting; corona of 1 to several series of distinct or more or less united filaments, rarely tubular; operculum borne within (or below) the corona, membranous, flat or plicate, entire, lacerate, or filamentose, rarely wanting; nectar ring an annular ridge within (or below) the operculum, sometimes wanting; limen borne close to the base of the gynophore, annular or cupuliform, sometimes wanting; stamens 5 (in American species), the filaments monadelphous in a tube closely adnate to the gynophore, distinct above, the free filaments at first erect, at length reflexed, attached to the back of the anther near its middle; anthers linear, ovate, or oblong, 2-celled; ovary globose, ovoid, or fusiform, borne on a gynophore, which is elongate in most species, very short or wanting in a few; styles 3, distinct, or united at the base, cylindric or clavate; stigmas capitate, orbicular, or reniform; fruit indehiscent, baccate, globose, ovoid, or rarely fusiform, containing a mucilaginous pulp; seeds more or less compressed, reticulate, punctulate, or transversely grooved, borne on 3 parietal placentae.

Type species: *Passiflora incarnata* L.

SYNOPSIS OF SUBGENERA

I. **Apodogyne** Killip, subgen. nov.

Herbaceous vine; petioles minutely biglandular; flowers fascicled, very small; calyx patelliform; operculum plicate; ovary sessile, terete; stamens borne on calyx at base of ovary; styles united at the base, projecting from the center of the top of the ovary; fruit very small; seeds transversely sulcate, the ridges rugulose. Type: *P. multiflora*. No. 1.

II. **Astephia** Killip, subgen. nov.

Herbaceous vine; petioles glandless; calyx campanulate; petals clawed at base; corona 1-ranked; operculum and limen none; styles united at base, projecting from center of top of ovary; seeds transversely sulcate, the ridges rugulose. Type: *P. penduliflora*. No. 2.

III. **Tryphostemmatoides** (Harms) Killip, stat. nov. *Passiflora* sect. *Tryphostemmatoides* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 500. 1925.

Slender, herbaceous vines; petioles glandless; peduncles 2-flowered, terminating in a tendril; calyx campanulate; operculum nonplicate; styles united at the very base, projecting from center of top of ovary; fruit 6-angled; seeds reticulate. Type: *P. trypho-stemmatoides*. Nos. 3, 4.

IV. **Deidamioides** (Harms) Killip, stat. nov. *Passiflora* sect. *Decaloba* subsect. *Deidamioides* Harms, Repert. Sp. Nov. 19: 58. 1923.

Herbaceous vine; petioles 2–4-glandular; leaves trifoliolate; peduncles 2-flowered, terminating in a tendril; operculum plicate. Type: *P. deidamioides*. No. 5.

V. **Plectostemma** Mast. Trans. Linn. Soc. 27: 626. 1871; in Mart. Fl. Bras. 13, pt. 1: 545. 1872.

Herbaceous vines; peduncles usually 1-flowered, not terminating in a tendril; calyx patelliform or campanulate; corona filamentose; operculum plicate; styles united at base, projecting from center of top of ovary.

Sect. 1. **Cieca** (Medic.) Mast. Trans. Linn. Soc. 27: 630. 1871, in part. *Cieca* Medic. Malvenfam. 97. 1787. *Baldwinia* Raf. Amer. Monthly Mag. 267. 1818. *Monactineirma* Bory, Ann. Gén. Soc. Phys. Brux. 2: 138. 1819. *Passiflora* sect. *Cieca* DC. Mém. Soc. Phys. Genève 1: 435. 1822, in part. *Meioperis* Raf. Fl. Tellur. 4: 103. 1838.

Petioles with 2 globose, clavate, or patelliform, sessile or stipitate glands; bracts linear-subulate or setaceous, usually dissitate; petals often wanting; seeds reticulate. Type: *P. viridis* (=*P. suberosa*). Nos. 6–31.

Sect. 2. **Mayapathanthus** Killip, sect. nov.

Petioles with 2 scarlike glands; bracts minute, crowded at base of peduncle; petals present; seeds apparently reticulate. Type: *P. obovata*. No. 32.

Sect. 3. **Decaloba** (DC.) Mast. Trans. Linn. Soc. 27: 631. 1871, in part. *Asephanathes* (*Astephananthes*) Bory, Ann. Gén. Soc. Phys. Brux. 2: 138. 1819. *Passiflora* sect. *Decaloba* DC. Mém. Soc. Phys. Genève 1: 435. 1822, in part. *Decaloba* M. Roemer, Fam. Nat. Syn. 2: 152. 1846. *Passiflora* subgen. *Plectostemma* sect. *Decaloba* subsect. *Eudecaloba* Mast. in Mart. Fl. Bras. 13, pt. 1: 548. 1872, in part. *Passiflora* sect. *Decaloba* subsect. *Eudecaloba* Harms in Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 88. 1893, in part.

Bracts usually linear-subulate or setaceous, dissitate, rarely wanting; petioles glandless (in 2 species bearing auricular appendages near base); petals usually present; seeds transversely sulcate, the ridges rugulose. Type: *P. biflora*. Nos. 33–102, in 8 series.

Sect. 4. **Xerogona** (Raf.) Killip, stat. nov. *Xerogona* Raf. Fl. Tellur. 4: 103. 1838.

Bracts none; petals present; fruit elongate-obovoid or fusiform, hexagonal; seeds transversely sulcate, the ridges smooth. Type: *Xerogona biloba* (=*P. capsularis*). Nos. 103–110.

Sect. 5. **Pseudodysosmia** (Harms) Killip, stat. nov. *Ceratosepalum* Oerst. Fl. Cent. Amer. 18. *pl. 17*. 1863. *Passiflora* sect. *Decaloba* subsect. *Pseudodysosmia* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 500. 1925.

Petiolar glands long-stipitate; bracts 3, oblong or lanceolate, verticillate near middle of peduncle, lacerate; petals present; seeds reticulate. Type: *P. adenopoda*. No. 111.

Sect. 6. **Pseudogranadilla** (Harms) Killip, stat. nov. *Passiflora* sect. *Decaloba* subsect. *Pseudogranadilla* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 500. 1925.

Petiolar glands none; bracts 3, foliaceous, verticillate near base of flowers; petals present; seeds transversely sulcate, the ridges rugulose. Type: *P. pulchella*. Nos. 112–117.

Sect. 7. **Hahniopathanthus** (Harms) Killip, stat. nov. *Passiflora* sect. *Decaloba* subsect. *Hahniopathanthus* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 500. 1925.

Petiolar glands none; bracts 2 or 3, very large, verticillate or nearly so, borne near base of flower; petals present; seeds reticulate. Type: *P. Hahnii*. Nos. 118–120.

VI. **Chloropathanthus** (Harms) Killip, stat. nov. *Synactila* Raf. Fl. Tellur. 4: 104. 1838. *Passiflora* sect. *Chloropathanthus* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 502. 1925.

Herbaceous vines; petioles biglandular; bracts filiform or wanting; calyx short-cylindric or bowl-shaped; petals none; corona filamentose; operculum short-tubular, nonplicate; styles united at very base, projecting from center of top of ovary; seeds reticulate. Type: *P. viridiflora*. Nos. 121, 122.

VII. **Murucuja** (Medic.) Mast. Trans. Linn. Soc. 27: 626. 1871, in part. *Murucuja* Medic. Malvenfam. 97. 1787. *Murucuja*

sections *Pentaria* and *Decaria* DC. Prodr. 3: 333. 1828. *Peremis* Raf. Fl. Tellur. 4: 104. 1838. *Pentaria* M. Roemer, Fam. Nat. Syn. 2: 187. 1846. *Passiflora* sect. *Murucuja* Benth. & Hook. Gen. Pl. 1: 811. 1862.

Herbaceous vines; petioles glandless; bracts narrowly linear or setaceous; calyx bowl-shaped; petals present; corona a tubular or funnel-shaped membrane, entire or denticulate; styles united at the very base, projecting from the center of the top of the ovary; seeds transversely sulcate. Type: *Murucuja lunata* (= *P. Murucuja*). Nos. 123–126.

VIII. **Pseudomurucuja** (Harms) Killip, stat. nov. *Pericodia* Raf. Fl. Tellur. 4: 104. 1838. *Psilanthus* M. Roemer, Fam. Nat. Syn. 2: 198. 1846, not DC. *Passiflora* sect. *Pseudomurucuja* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 501. 1925.

Herbaceous vines; petioles glandless; bracts setaceous; calyx bowl-shaped, tubular-campanulate, or short-cylindric, shorter than the sepals; corona filamentose; styles united at very base, projecting from center of top of ovary; seeds transversely sulcate. Type: *P. perfoliata*. Nos. 127–131.

IX. **Psilanthus** (DC.) Killip, stat. nov. *Tacsonia* sect. *Psilanthus* DC. Prodr. 3: 355. 1828. *Passiflora* subgen. *Murucuja* sect. *Psilanthus* Mast. Trans. Linn. Soc. 27: 626. 1871, in part. *Passiflora* sect. *Psilanthus* Harms in Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 89. 1893.

Herbaceous vines; petioles glandless; bracts setaceous; calyx cylindric, elongate, longer than the sepals; corona filamentose; operculum borne near base of tube, erect; styles united at base; seeds transversely sulcate. Type: *Tacsonia trinervia* (= *P. trinervia*). Nos. 132–135.

X. **Adenosepala** Killip, subgen. nov.

Woody vine; petioles biglandular near base; bracts lance-linear, involucrate; calyx urceolate-campanulate; sepals dorsally glandular near margin; corona a low, fleshy ring, cleft into triangular-dentiform processes; ovary tapering to the styles, the styles distinct. Type: *P. Ernesti*. No. 136.

XI. **Tacsoniopsis** (Tr. & Planch.) Killip, stat. nov. *Passiflora* subgen. *Tacsonia* sect. *Tacsoniopsis* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 127. 1873. *Passiflora* sect. *Tacsoniopsis* Harms in Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 91. 1893.

Herbaceous vine; bracts foliaceous; calyx cylindric-funnel-shaped; sepals united above the throat of the tube for about half their length, the petals borne at the base of these lobes; corona minute; ovary tapering to the styles, the styles distinct; operculum dependent; fruit covered with long tubercles. Type: *P. bracteosa*. No. 137.

XII. **Rathea** (Karst.) Killip, stat. nov. *Rathea* Karst. Fl. Colomb. 1: 77. *pl. 38*. 1858–1861. *Tacsonia* sect. *Rathea* Mast. Journ. Linn. Soc. 20: 26. 1883. *Passiflora* sect. *Rathea* Harms in Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 91. 1893.

Herbaceous vine; petioles minutely glandular; bracts foliaceous; calyx cylindric; petals inserted at the middle of the tube below the sepals; corona none; ovary tapering to the styles, the styles distinct; fruit smooth; seeds smooth toward margin, obscurely transverse-sulcate at center of face. Type: *Rathea floribunda* (=*P. andina*). No. 138.

XIII. **Tacsonia** (Juss.) Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 126. 1873. *Tacsonia* Juss. Gen. Pl. 398. 1789. *Tacsonia* sect. *Eutacsonia* DC. Prodr. 3: 333. 1828, in part. *Tacsonia* sect. *Bracteogama* DC. Prodr. 3: 334. 1828, in part. *Poggendorffia* Karst. Linnaea 28: 438. 1856. *Passiflora* sect. *Tacsonia* ser. *Bolivianae, Pinnatistipulae, Insignes, Eutacsoniae,* and *Parritanae* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 506. 1925.

Herbaceous or subligneous vines; petioles usually glandular, the glands often very small; bracts large, free, or connate part way; flowers showy, usually purple or red; calyx cylindric, much longer than the sepals (shorter in 1 species), the petals inserted at its margin; corona 1–2-ranked, often reduced to tubercles; operculum dependent; ovary usually tapering gradually or subabruptly to the styles, the styles distinct; seeds, so far as known, finely reticulate. Type: *P. longiflora* (=*P. mixta*). Nos. 139–174.

XIV. **Granadillastrum** (Tr. & Planch.) Killip, stat. nov. *Odostelma* Raf. Fl. Tellur. 4: 104. 1838. *Passiflora* subgen. *Tacsonia* sect. *Granadillastrum* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 127. 1873. *Passiflora* subgen. *Tacsonia* sect. *Poggendorffia* Tr. & Planch. V. Bot. 17: 139. 1873, in greater part. *Passiflora* sect. *Granadillastrum* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 504. 1925. *Passiflora* sect. *Tacsonia* ser. *Manicatae* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 505. 1925.

Herbaceous vines; bracts large, involucrate, free, or connate below middle; calyx urceolate-campanulate to short-cylindric, shorter

than the sepals; corona in 3 or more series, each series free to the base, at least the outer series filamentose; operculum dependent; ovary tapering to the styles, the styles distinct. Type: *P. semiciliosa*. Nos. 175–180.

XV. **Distephana** (Juss.) Killip, stat. nov. *Distephana* Juss. Ann. Mus. Hist. Nat. 6: 396. 1805. *Tacsonia* sect. *Distephana* DC. Prodr. 3: 335. 1828. *Macrophora* Raf. Fl. Tellur. 4: 103. 1838. *Passiflora* subgen. *Tacsonia* sect. *Distephana* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 127. 1873. *Passiflora* sect. *Distephana* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 504. 1925.

Herbaceous or usually woody vines; bracts verticillate, glandular at margin, highly variable in size and shape; calyx short-cylindric, rarely campanulate, shorter than the sepals; corona in 2 or 3 series, the inner a fimbriate, tubular membrane; operculum dependent; ovary subtrigonous, tapering to the styles, the styles distinct to base or slightly united at the very base, sometimes the ovary subtruncate and the styles projecting from the top of the angles, thus similar to *Astrophea*. Type: *Tacsonia glandulosa* (= *P. glandulosa*). Nos. 181–188.

XVI. **Calopathanthus** (Harms) Killip, stat. nov. *Passiflora* sect. *Calopathanthus* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 504. 1925.

Herbaceous vine; inflorescence pseudoracemose; bracts and bractlets setaceous; calyx short-cylindric; corona filamentose to base, 3-ranked; operculum suberect, tubular; ovary tapering to the styles, the styles distinct. Type: *P. racemosa*. No. 189.

XVII. **Tacsonioides** (DC.) Killip, stat. nov. *Passiflora* sect. *Tacsonioides* DC. Prodr. 3: 330. 1828. *Erndelia* Raf. Fl. Tellur. 4: 104. 1838, not Necker. *Passiflora* sect. *Tacsonioides* ser. *Umbilicatae* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 506. 1925. Type: *P. reflexiflora*. Nos. 190–194.

Herbaceous vines; bracts involucrate, free; calyx narrowly cylindric, subequal to the sepals; corona short-filamentose, 2–5-ranked; operculum erect; ovary usually tapering to the styles, the styles distinct.

XVIII. **Granadilla** (Medic.) Mast. Trans. Linn. Soc. 27: 635. 1871. *Granadilla* Medic. Malvenfam. 96. 1787, in part. *Anthactinia* Bory, Ann. Gén. Soc. Phys. Brux. 2: 139. 1819. *Passiflora* sect. *Granadilla* DC. Mém. Soc. Phys. Genève 1: 435. 1822.

Herbaceous, rarely woody vines; bracts entire or serrulate, usually large and involucrate; flowers generally large and highly colored; calyx campanulate, rarely short-tubular, shorter than the sepals; corona variable, 3–several-ranked in all but a few species, the filaments often variegated; operculum incurved, erect at margin, rarely erect throughout; ovary narrowed to the styles, or the styles arising at center of top of ovary, free, or united at the very base; fruit often very large. Type: *P. caerulea*. Nos. 195–290, in 15 series.

XIX. **Dysosmia** (DC.) Killip, stat. nov. *Passiflora* sect. *Dysosmia* DC. Mém. Soc. Phys. Genève 1: 436. 1822. *Tripsilina* Raf. Fl. Tellur. 4: 103. 1838. *Dysosmia* M. Roemer, Fam. Nat. Syn. 2: 149. 1846. *Passiflora* subgen. *Plectostemma* sect. *Dysosmia* Mast. Trans. Linn. Soc. 27: 631. 1871, in part. *Passiflora* sect. *Dysosmia* Benth. & Hook. Gen. Pl. 1: 810. 1862.

Herbaceous vines, occasionally low shrubs; stipules deeply cleft into filiform, usually gland-tipped segments, the uncut part merely a narrow band about the stem; petioles without true glands though often bearing gland-tipped hairs; bracts pinnatisect to tripinnatisect, the segments usually gland-tipped; flowers medium-sized; calyx campanulate; corona 4–5-ranked; operculum erect, denticulate; styles united at the very base, projecting from center of top of ovary; seeds reticulate. Type: *P. hibiscifolia* (= *P. foetida* var. *hibiscifolia*). Nos. 291–301.

XX. **Dysosmioides** Killip, subgen. nov. *Passiflora* subgen. *Plectostemma* sect. *Dysosmia* Mast. Trans. Linn. Soc. 27: 631. 1871, in part.

Herbaceous vines; petioles without true glands though often bearing gland-tipped hairs; stipules ovate or semi-ovate, denticulate to lacerate-dentate; bracts lacerate-dentate or laciniate; calyx campanulate; corona 3-ranked; operculum filamentose; styles free to base, projecting from center of top of ovary. Type: *P. villosa*. Nos. 302–306.

XXI. **Polyanthea** (DC.) Killip, stat. nov. *Passiflora* sect. *Polyanthea* DC. Mém. Soc. Phys. Genève 1: 435. 1822; Prodr. 3: 322. 1828, in part. *Passiflora* subgen. *Plectostemma* sect. *Decaloba* subsect. *Polyanthea* Mast. in Mart. Fl. Bras. 13, pt. 1: 548. 1872, in part. *Passiflora* sect. *Decaloba* subsect. *Polyanthea* Harms in Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 88. 1893, in part; ed. 2, 21: 499. 1925.

Woody vine; leaves compound; peduncles 2-flowered, terminating in a tendril; calyx broadly campanulate; corona 3-ranked, the outer-

most filaments verrucose or filamentose along the margin; operculum plicate; ovary trigonous, truncate, the styles projecting from the top of its angles, the stigmas very large. Type: *P. cirrhiflora*. No. 307.

XXII. **Astrophea** (DC.) Mast. Trans. Linn. Soc. 27: 629. 1871. *Passiflora* sect. *Astrophea* DC. Mém. Soc. Phys. Genève 1: 435. 1822. *Astrophea* Reichenb. Consp. 132. 1828.

Trees, shrubs, or woody vines; tendrils often reduced to spines or wanting; petiolar glands scarlike if present; leaves simple; corona filaments short; operculum erect, subentire or usually more or less deeply cleft; ovary trigonous, broadly truncate, the styles projecting from the top of its angles.

Sect. 1. **Dolichostemma** Killip, sect. nov.

Plants scandent or arborescent; tendrils axillary, weak or wanting; calyx campanulate; corona 5-ranked; operculum long-tubular, exserted. Type: *P. Haughtii*. Nos. 308, 309.

Sect. 2. **Cirrhipes** Killip, sect. nov.

Woody vine; peduncles terminating in a tendril; calyx cylindric-campanulate; corona 3-ranked; operculum short, fimbriate halfway. Type: *P. cirrhipes*. No. 310.

Sect. 3. **Euastrophea** (Harms) Killip, stat. nov. *Passiflora* sect. *Astrophea* subsect. *Euastrophea* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 498. 1925.

Trees or shrubs, usually without tendrils; peduncles solitary or in pairs, usually dichotomous, ecirrhose; calyx campanulate or short-tubular, shorter than the sepals; corona 2–3-ranked. Type: *P. arborea*. Nos. 311–325.

Sect. 4. **Leptopoda** Killip, sect. nov.

Scandent shrub, apparently without tendrils; inflorescence racemose, the pedicels divaricate or pendulous; calyx short-cylindric; corona in several ranks, all but the outer one consisting of numerous plumose, reflexed filaments; operculum entire. Type: *P. leptopoda*. No. 326.

Sect. 5. **Pseudoastrophea** (Harms) Killip, stat. nov. *Passiflora* sect. *Astrophea* subsect. *Pseudoastrophea* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 498. 1925.

Scandent shrubs or woody vines; peduncles solitary or in pairs, simple, short; calyx campanulate to cylindric-campanulate or funnel-

shaped, shorter than the sepals; corona not plumose. Type: *P. Mansii*. Nos. 327–343.

Sect. 6. **Botryastrophea** (Harms) Killip, stat. nov. *Passiflora* sect. *Astrophea* subsect. *Botryastrophea* Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 498. 1925.

Scandent shrubs or woody vines (1 species a shrub or small tree); flowers in racemes, pseudoracemes, or dense fascicles; calyx cylindric, longer than the sepals; corona not plumose. Type: *P. spicata*. Nos. 344–354.

KEY TO SUBGENERA

Ovary sessile; flowers not more than 1.5 cm. wide (southern Florida and the West Indies; Costa Rica?).....I. *Apodogyne*.

Ovary borne on a gynophore (sometimes sessile in *P. apoda*); flowers usually larger.

Operculum none; petals clawed at base (Cuba and Jamaica). II. *Astephia*.

Operculum present; petals not clawed.

A. Ovary terete or subangular, not definitely 3-angled, acute or rounded, the styles projecting from center of top of ovary and often united at the base, or the ovary tapering to the styles, the styles free to base; herbaceous or woody vines (low shrubs in a few species of *Dysosmia*).

Peduncles terminating in a tendril, 2-flowered.

Flowers less than 3 cm. wide; operculum not plicate (Panama to Ecuador).....III. *Tryphostemmatoides*.

Flowers more than 3 cm. wide; operculum plicate (Brazil). IV. *Deidamioides*.

Peduncles not terminating in a tendril, 1 (rarely 2–several)-flowered..

Operculum plicate; bracts (if present) linear-subulate or setaceous, not involucrate (broader and usually involucrate in sections 5–7 of *Plectostemma;* broader in *Granadilla*, series *Kermesinae*).

Flowers usually small and not highly colored; corona 1–2-ranked (except in *P. pulchella*); operculum without a row of filaments upon its outside..V. *Plectostemma*.

Flowers usually more than 5 cm. wide, highly colored; corona in more than 2 series; operculum with row of filaments outside.XVIII. *Granadilla*, series *Kermesinae*.

Operculum not plicate, of various forms; bracts setaceous or foliaceous, scattered along the peduncle or involucrate.

Bracts setaceous, scattered along the peduncle.

Petals none; petioles biglandular; seeds reticulate (Mexico; Jamaica).....VI. *Chloropathanthus.*

Petals present; petioles glandless; seeds transversely sulcate.

Corona tubular or funnel-shaped, at most denticulate (West Indies).....VII. *Murucuja.*

Corona filamentose, the filaments sometimes united toward the base.

Calyx bowl-shaped or tubular-campanulate (often cylindric in *P. oblongata*), less than 2 cm. long, shorter than the sepals; plants glabrous (West Indies).....VIII. *Pseudomurucuja.*

Calyx cylindric, more than 2 cm. long, equaling or longer than the sepals; plants glabrous or pubescent (calyx sometimes less than 2 cm. long and shorter than the sepals in *P. sanguinolenta;* Colombia and Ecuador).
IX. *Psilanthus.*

Bracts predominantly verticillate, forming an involucre at the base of the flower, usually large and foliaceous.

Sepals dorsally glandular at the margin; corona a low, fleshy ring, cleft into triangular-dentiform processes (Amazonian Brazil).....X. *Adenosepala.*

Sepals not glandular (except in *P. setacea*); corona other than above.

B. Operculum dependent, the margin not recurved; calyx tube usually long-cylindric.

Corona 1–2-ranked, tuberculate (filamentose in a few species); calyx tube elongate, longer than the sepals, but shorter than the sepals in *P. insignis* (Andes).

Sepals united above the throat of the tube for half their length, the petals inserted at the base of the lobes.....XI. *Tacsoniopsis.*

Sepals free to the throat of the calyx tube.

Petals inserted at the middle of the tube, below the sepals.....XII. *Rathea.*

Petals inserted at the throat of the tube. XIII. *Tacsonia.*

Corona in more than 2 ranks (if 2-ranked then the inner rank tubular), at least the outer rank filamentose; calyx tube urceolate-campanulate to short-cylindric, shorter than the sepals.

Corona filaments of each rank distinct to base; leaves 3-lobed or 3-sect. XIV. *Granadillastrum.*

Corona filaments of inner rank united part way into a tubular membrane; leaves entire or 3-lobed. Flowers scarlet..XV. *Distephana.*

B. Operculum erect or horizontally spreading, not dependent.

Flowers in long racemes; bractlets setaceous, soon deciduous.....XVI. *Calopathanthus.*

Flowers solitary or in pairs in the leaf axils; bracts usually foliaceous and persistent.

Calyx tube narrowly cylindric, about as long as the sepals.....XVII. *Tacsonioides.*

Calyx tube campanulate or rarely short-tubular, much shorter than the sepals.

Bracts entire or serrulate (pectinate in *P. pedata*), forming an involucre near the base of the flower....XVIII. *Granadilla.*

Bracts lacerate-dentate to bipinnatisect, the ultimate divisions usually gland-tipped.

Stipules deeply cleft into filiform, or occasionally pinnatisect divisions, the uncut portion merely a narrow band about the stem; bracts pinnatisect to tripinnatisect; operculum denticulate. XIX. *Dysosmia.*

Stipules denticulate to lacerate-dentate, the uncut portion ovate or semi-ovate; bracts lacerate-dentate or laciniate; operculum filamentose (Brazil). XX. *Dysosmioides.*

A. Ovary 3-angled, broadly truncate at apex, the styles projecting from the top of the angles; outer corona filaments often verrucose; trees, shrubs, or woody vines.

Leaves compound; stigmas about 5 mm. in diameter; peduncles terminating in a tendril (Guianas; Brazil).
XXI. *Polyanthea.*

Leaves simple; stigmas smaller; peduncles not terminating in a tendril (except in *P. cirrhipes*)...XXII. *Astrophea.*

Subgenus I. **Apodogyne**

One species.....1. *P. multiflora.*

Subgenus II. **Astephia**

One species.....2. *P. penduliflora.*

Subgenus III. **Tryphostemmatoides**

Peduncles less than 1.5 cm. long; leaves transversely ovate, broader than long.....3. *P. tryphostemmatoides.*

Peduncles more than 1.5 cm. long; leaves oblong-ovate to suborbicular, longer than broad.....4. *P. gracillima.*

Subgenus IV. **Deidamioides**

One species.....5. *P. deidamioides.*

Subgenus V. **Plectostemma**

KEY TO SECTIONS

Bracts linear-subulate or setaceous, less than 6 mm. long, not involucrate, sometimes wanting (narrowly ovate to oblanceolate in *P. pilosa*).

Petiolar glands present; seeds reticulate.

Bracts usually dissitate along the peduncle, more than 1 mm. long; petiolar glands globose, clavate, or patelliform, sessile or stipitate.....Section 1. *Cieca.*

Bracts crowded at base of peduncle, less than 1 mm. long; petiolar glands scarlike (British Honduras).
Section 2. *Mayapathanthus.*

Petiolar glands none (petioles with auricular appendages near base in *P. auriculata* and *P. ferruginea*).

Seeds with rugulose, transverse ridges; bracts present (absent in three species); fruit prevailingly globose or ovoid.
Section 3. *Decaloba.*

Seeds with smooth, transverse ridges; bracts none; fruit prevailingly elongate-obovoid or fusiform.
Section 4. *Xerogona.*

Bracts lanceolate to orbicular-cordate, involucrate, usually purplish or pinkish.

Petiolar glands orbicular, long-stipitate; bracts lanceolate or oblong, verticillate near middle of peduncle, lacerate.
Section 5. *Pseudodysosmia.*

Petiolar glands none; bracts obovate to orbicular-cordate, involucrate, entire (lacerate in *P. rugosissima*).

Seeds transversely sulcate; stipules linear or linear-subulate (cordate in *P. porphyretica*); bracts 3, less than 2 cm. long.
Section 6. *Pseudogranadilla.*

Seeds reticulate; stipules reniform; bracts usually 2, more than 2 cm. long.....Section 7. *Hahniopathanthus.*

Subgenus V. **Plectostemma,** Section 1. **Cieca**

A. Petals none.

Stipules narrowly linear or setaceous.

Petiolar glands sessile, more than 0.5 mm. in diameter; leaves much broader than long (subrotund in *P. clypeophylla*).

Leaves distinctly peltate, their lobes, if present, triangular-ovate.

Peduncles less than 1.5 cm. long; ovary ovoid; leaves transversely oblong-elliptic (rarely 3-lobed), coriaceous, green beneath.....6. *P. coriacea.*

Peduncles more than 1.5 cm. long; ovary globose; leaves subrotund, submembranous, glaucous beneath.
7. *P. clypeophylla.*

Leaves not peltate, their lobes prevailingly linear (southwestern United States and northern Mexico).
8. *P. tenuiloba.*

Petiolar glands usually pediceled and less than 0.5 mm. in diameter; leaves usually longer than broad.

Glands borne at or above middle of petiole; fruit globose or ovoid; leaves entire or 3-lobed, polymorphic, green beneath.....9. *P. suberosa.*

Glands borne below middle of petiole; fruit ellipsoidal; leaves 3-lobed to middle, glaucous beneath.....10. *P. gracilis.*

Stipules ovate (Guatemala).....11. *P. trinifolia.*

A. Petals present.

Peduncles more than 1-flowered, rarely the lower 1-flowered in *P. holosericea.*

Outer corona filaments lanceolate; petals mottled with red within.....12. *P. holosericea.*

Outer corona filaments filiform; petals not mottled with red within (Colombia and Ecuador).

Gynophore well developed; sepals narrowly lanceolate. 13. *P. Sodiroi.*

Gynophore very short or wanting; sepals broadly ovate. 14. *P. apoda.*

Peduncles 1-flowered.

B. Corona 1-ranked; leaves membranous, dull above; stipules semi-ovate (linear or setaceous in four species).

C. Glands borne on upper third of petiole.

Leaves not lobed, oblong-ovate, acuminate (Costa Rica). 15. *P. dioscoreaefolia.*

Leaves 3–5-lobed.

Bracts ovate to oblanceolate, more than 1 mm. wide (Mexico).....16. *P. pilosa.*

Bracts linear or setaceous, not more than 1 mm. wide.

Leaves entire at margin, truncate at base, 3-lobed one-third their length; stipules setaceous (Venezuela). 17. *P. stellata.*

Leaves usually toothed, cordate at base, lobed at least to middle; stipules usually semi-ovate.

Ovary densely pubescent; seeds not strongly flattened, nearly 2 mm. thick (Brazil to Argentina; rare elsewhere).

Leaves lobed about to middle, the central lobe lance-deltoid, not narrowed at base. 18. *P. Warmingii.*

Leaves lobed about two-thirds their length, the central lobe ovate, usually narrowed at base. 19. *P. morifolia.*

Ovary glabrous; seeds usually strongly flattened, less than 2 mm. thick (southwestern United States and Mexico).

Stem and leaves densely hirtellous; leaves subentire or shallowly and irregularly dentate or denticulate, 3-lobed with the basal lobes usually bilobate, the middle lobe somewhat narrowed at base.

Petals linear or linear-lanceolate, 5 mm. long or less; stipules semi-ovate; tendrils well developed.....20. *P. bryonioides.*

Petals oblong-lanceolate, more than 5 mm. long; stipules linear-falcate; tendrils weak or often wanting.....21. *P. Karwinskii.*

Stem and leaves glabrate or very finely pilosulous; leaves regularly sinuate-dentate, strictly 3-lobed, the middle lobe not narrowed at base. 22. *P. colimensis.*

C. Glands borne below upper third of petiole.

Stipules narrowly linear or setaceous; plants glabrous.

Bracts setaceous, borne above middle of peduncle; petiolar glands about 0.5 mm. in diameter (Costa Rica).....23. *P. pediculata.*

Bracts narrowly linear, often 1–2-toothed, scattered along peduncle; petiolar glands about 1 mm. in diameter (northern Mexico).....24. *P. quercetorum.*

Stipules semi-ovate or subreniform; plants usually pubescent (Mexico and Guatemala).

Lobes of leaves acute or acuminate; stipe of fruit 1.5 cm. or more long.

Bracts setaceous; leaves about as broad as long, subentire.....25. *P. sicyoides.*

Bracts semi-ovate, irregularly lobate; leaves longer than broad, lower lobes reduced...26. *P. dolichocarpa.*

Lobes of leaves obtuse, rarely subacute; stipe of fruit less than 1.5 cm. long.

Stalks of petiolar glands more than 6 mm. long, very slender.....27. *P. podadenia.*

Stalks of petiolar glands less than 5 mm. long, coarser. 28. *P. exsudans.*

B. Corona 2–3-ranked; leaves coriaceous, lustrous above; stipules setaceous.

Petiolar glands 1 mm. in diameter; leaves membranous, inconspicuously reticulate-veined (Brazil) .29. *P. truncata.*

Petiolar glands less than 1 mm. in diameter; leaves coriaceous, strongly reticulate-veined.

Leaves densely pilosulous beneath; middle leaf lobe less than half as long as lateral lobes (Bolivia).
30. *P. exoperculata.*

Leaves glabrous or sparingly pubescent beneath; middle lobe more than half as long as lateral lobes (Peru).
31. *P. Lobbii.*

Subgenus V. **Plectostemma,** Section 2. **Mayapathanthus**

One species.....32. *P. obovata.*

Subgenus V. **Plectostemma,** Section 3. **Decaloba**

KEY TO SERIES

Petioles with auricular appendages at middle or near base; leaves ovate-lanceolate, entire or with 2 reduced lateral lobes.
Series 1. *Auriculatae.*

Petioles without appendages; leaves variously lobed, entire in *P. quadrifolia.*

Leaves lobed nearly to base or pedately 3-parted, the segments usually lobulate (West Indies).....Series 2. *Heterophyllae.*

Leaves entire to deeply lobed, but the lobes not lobulate, the leaves never pedately parted.

Peduncles more than 1-flowered, rarely 1-flowered in *P. sexflora.*
Series 3. *Sexflorae.*

Peduncles 1-flowered.

Petals none.....Series 4. *Apetalae.*

Petals present.

Bracts none; peduncles very slender; leaves broader than long, 3-lobed, the lobes usually obtuse.Series 5. *Luteae.*

Bracts present though often early deciduous.

Corona 1-ranked.....Series 6. *Organenses.*

Corona 2-ranked.

Inner corona filaments linear, broadly dilated at apex and often lobulate.....Series 7. *Miserae.*

Inner corona filaments filiform or capillary, rarely minutely capitellate.....Series 8. *Punctatae.*

Series 1. **Auriculatae**

Plant glabrous to cinereous-pubescent; fruit globose, not more than 1.5 cm. in diameter.....33. *P. auriculata.*

Plant ferruginous-tomentose; fruit broadly ovoid, more than 1.5 cm. in diameter (Peru).....34. *P. ferruginea.*

Series 2. **Heterophyllae**

Plant glabrous; segments of leaves petiolulate...35. *P. Berteriana.*

Plant hirsutulous; segments of leaves not petiolulate.
36. *P. heterophylla.*

Series 3. **Sexflorae**

Leaves not lobed, narrowly elliptic-oblong (Peru)..37. *P. quadriflora.*

Leaves lunately or truncately lobed, broader than long.

Plant densely pubescent; leaves 3-lobed; peduncles stout, usually more than 3-flowered.....38. *P. sexflora.*

Plant glabrous; leaves bilobed; peduncles very slender, 2- or 3-flowered.

Corona 1-ranked; leaf lobes only slightly divergent (Guatemala).....39. *P. allantophylla.*

Corona 2-ranked; leaf lobes strongly divergent, the blade therefore transversely oblong (Brazil).....40. *P. saxicola.*

Series 4. **Apetalae**

Leaves longer than broad, deeply bilobed; sepals lanceolate, less than 5 mm. wide (Costa Rica and Panama).....41. *P. apetala.*

Leaves broader than long, repand-truncate at upper margin; sepals broadly ovate, about 1 cm. wide (Peru).....42. *P. Poeppigii.*

Series 5. **Luteae**

Outer corona filaments narrowly linear (United States).43. *P. lutea.*

Outer corona filaments filiform.

Stem, older leaves (at least), and ovary glabrous; leaves very thin, the venation inconspicuous.....44. *P. filipes.*

Stem, leaves, and ovary pubescent; leaves thicker, the venation conspicuous.....45. *P. Pavonis.*

Series 6. **Organenses**

Operculum slightly plicate at apex, erect.

Stem and petioles glabrous; leaves lobed to below middle; flowers pink (Salvador).....46. *P. salvadorensis.*

Stem and petioles puberulent; leaves lobed one-third their length; flowers orange (Mexico).....47. *P. jorullensis.*

Operculum plicate throughout, usually incurved.

Corona filaments linear-clavate, not more than 2 mm. long; leaves bilobed to below middle, the lobes suberect (Central America). 48. *P. ornithoura.*

Corona filaments filiform, ligulate, or dolabriform, more than 2 mm. long.

Corona filaments filiform or ligulate, less than 1 mm. wide (Mexico).....49. *P. Dictamo.*

Corona filaments dolabriform, more than 1 mm. wide.

Leaves nearly as broad as long, shallowly 2–3-lobed at apex (Mexico and Guatemala).....50. *P. Helleri.*

Leaves much broader than long.

Sepals linear, more than 2 cm. long; gynophore very slender, more than 1.5 cm. long (West Indies). 51. *P. stenosepala.*

Sepals oblong-lanceolate, not more than 2 cm. long (Brazil). 52. *P. organensis.*

Series 7. **Miserae**

Ovary densely cano-tomentose (Peru).....53. *P. leptoclada.*

Ovary glabrous.

Leaves 2-lobed, the lobes widely divergent (hence leaves transversely oblong), occasionally a small intermediate lobe present.

Fruit globose.....54. *P. misera.*

Fruit fusiform.....55. *P. amalocarpa.*

Leaves 3-lobed, the lobes ascending, subequal or the middle the longest. Occasionally in *P. tricuspis* the middle lobe is wanting, the sinus being lunate (South America).

Leaves coriaceous or subcoriaceous, lustrous above, green beneath.....56. *P. tricuspis.*

Leaves membranous, dull above and conspicuously fasciate along nerves, reddish beneath.....57. *P. trifasciata.*

Series 8. **Punctatae**

Outer corona filaments united near base into a prominent membrane, the inner filaments arising from this membrane at a distance of about 2 mm. from the free outer filaments.

Peduncles less than 2 cm. long; leaves coriaceous, the lobes widespreading (Trinidad and Guianas).....58. *P. vespertilio.*

Peduncles more than 2 cm. long; leaves submembranous, the lobes suberect (Bolivia to northwest Argentina)..59. *P. urnaefolia.*

Outer corona filaments not united into a prominent membrane, the inner filaments arising close to the outer.

Limen none (Trinidad, northern South America)..60. *P. tuberosa.*

Limen present.

A. Leaves longer than broad, prevailingly oblong in general outline, subentire or 3-lobed with the central lobe equaling or exceeding the lateral lobes; if 2-lobed, the depth of the sinus not half the length of the blade; general outline cuneiform in *P. magdalenae*, suborbicular in *P. panamensis* and *P. Candollei.*

Calyx densely white-tomentose within; leaves thick-coriaceous, very lustrous above (Costa Rica).

61. *P. lancearia.*

Calyx glabrous within; leaves subcoriaceous, dull or sublustrous above.

Leaves cuneiform or suborbicular in general outline, the lobes subequal, or the lateral only slightly shorter than the middle one.

Fruit less than 1 cm. in diameter; leaves cuneate, the lobes rounded or truncate (Colombia).

62. *P. magdalenae.*

Fruit about 2 cm. in diameter; leaves rounded at base, the lobes acute or subobtuse (Panama).

63. *P. panamensis.*

Leaves lance-oblong or ovate-oblong.

B. Lateral leaf lobes shorter than the central lobe, sometimes wanting and, hence, the leaves entire.

Peduncles slender, much exceeding the petioles; plant glabrescent or finely appressed-pubescent.

64. *P. cuspidifolia.*

Peduncles stouter, shorter than the petioles; plant densely and softly pubescent or pilose.

Outer corona filaments fusiform or liguliform; plant densely and softly pubescent with short hairs.

65. *P. mollis.*

Outer corona filaments linear-lanceolate; plant densely pilose.....66. *P. pilosissima.*

B. Lateral leaf lobes usually much exceeding the central lobe.

Outer corona filaments abruptly dilated into a flat-capitate apex (Colombia and Venezuela). 67. *P. bogotensis.*

Outer corona filaments not abruptly dilated into a flat-capitate apex.

Outer corona filaments abruptly and strongly dilated in upper third, then tapering to a filiform apex (Colombia)..68. *P. alnifolia.*

Outer corona filaments not as above but of variable form, linear, liguliform, or fusiform.

C. Lobes of leaves obtuse (sometimes mucronulate), or the leaves suborbicular.

Flowers at least 1.5 cm. wide; peduncles more than 1.5 cm. long.

Outer corona filaments narrowly liguliform, not dilated; leaves broadly truncate or cordulate at base; plant more or less pubescent.

Bracts entire; calyx tube not more than 6 mm. wide at base; petals ovate-lanceolate (Colombia and Ecuador).....69. *P. bauhinifolia.*

Bracts 2–3-cleft; calyx tube more than 6 mm. wide at base; petals narrowly linear (Bolivia). 70. *P. Tatei.*

Outer corona filaments trigonous, usually dilated near middle; leaves rounded at base; plant usually glabrous, or nearly so (Venezuela and Colombia). 71. *P. cuneata.*

Flowers not more than 1.5 cm. wide; peduncles less than 2 cm. long (Haiti). 91. *P. Ekmanii.*

C. Lobes of leaves acute.

Leaves puberulent above, densely tomentellous beneath, drying reddish; flowers borne on short, axillary branches (Venezuela).....72. *P. lyra.*

Leaves glabrous, finely puberulent, or canescent.

Middle leaf lobe longer than the lateral lobes; ovary densely tomentellous (Costa Rica)..73. *P. talamancensis.*

Middle leaf lobe, if present, much reduced; ovary glabrous or pilose (South America).

Leaves narrowest above middle, the lobes erect (Colombia and Ecuador).

Ovary glabrous; leaves glaucous beneath; limen cushion-like. 74. *P. popayanensis.*

Ovary pubescent; leaves green beneath; limen narrowly annular.

Outer corona filaments slightly dilated at base, tapering to apex; length along lateral nerves of leaves at least twice as great as width of leaves; peduncles not more than 2.5 cm. long.

Stem glabrous, scabrid; outer filaments about 1 cm. long. 75. *P. chelidonea.*

Stem pilosulous, smooth; outer filaments less than 8 mm. long...76. *P. tribolophylla.*

Outer corona filaments conspicuously dilated at and above middle; length along lateral nerves of leaves less than twice as great as width of leaves; peduncles more than 2.5 cm. long...77. *P. Dawei.*

Leaves broadest above middle, the lobes somewhat divergent.

Outer corona filaments liguliform, not 3-angled; leaves cuneate at base, longer than broad.

78. *P. ichthyura.*

Outer corona filaments 3-angled; leaves rounded or subtruncate at base.....79. *P. Candollei.*

A. Leaves broader than long or, if longer than broad, predominantly 2-lobed, the depth of the sinus at least half the length of the blade.

Outer corona filaments conspicuously dilated at or above middle, less than half as long as the sepals, usually 3-angled.

Gynophore 1 to 1.2 cm. long; outer corona filaments straight; peduncles solitary (Yucatán).

80. *P. yucatanensis.*

Gynophore less than 8 mm. long; outer corona filaments strongly falcate or dolabriform; peduncles solitary or in pairs.

Peduncles more than 3.5 cm. long, usually solitary; ovary ellipsoidal (Panama to Peru).....81. *P. punctata.*

Peduncles not more than 3.5 cm. long, in pairs; ovary globose or ovoid.

Outer corona filaments dilated near middle, yellow; sepals and petals ovate-lanceolate (Mexico to Venezuela).....82. *P. biflora.*

Outer corona filaments dilated at apex, purplish(?); sepals and petals linear(Brazil).83. *P. glaucescens.*

Outer corona filaments filiform or liguliform, not dilated, terete or flat, scarcely angled, usually more than half as long as the sepals.

B. Lobes of leaves narrowly linear (or oblong in *P. nipensis*), rarely as much as 5 mm. wide, attenuate at apex (Cuba and Haiti).

Operculum incised-dentate, the teeth triangular; stipules more than 3 mm. long; bracts borne below middle of peduncle (Haiti).....84. *P. anadenia.*

Operculum subentire, minutely papillose; stipules not more than 3 mm. long; bracts borne near apex of peduncle (Cuba).

Leaf lobes linear, 3 cm. or more long, less than 2.5 mm. wide; sepals less than 1.5 cm. long. 85. *P. stenoloba.*

Leaf lobes narrowly oblong or lance-oblong, less than 3 cm. long, 2.5 to 5 mm. wide; sepals 1.5 cm. or more long. . . . . 86. *P. nipensis.*

B. Lobes of leaves oblong or oblong-lanceolate, more than 5 mm. wide, if linear, then abruptly dilated at apex.

C. Flowers not more than 2.5 cm. wide.

Bracts linear-subulate, congested at base of peduncle; leaves deeply bilobed, the intermediate lobe, if present, reduced to a mere cusp (Puerto Rico and Hispaniola).

Leaves lobed to below middle, the lobes usually emarginate and broadest at apex; flowers borne on main stem. . . . . 87. *P. bilobata.*

Leaves lobed only to middle, the lobes rounded at apex, broadest toward base; flowers borne on short, leafless branchlets. . . . . 88. *P. bicrura.*

Bracts setaceous, scattered along peduncle; leaves subtruncately 2–3-lobed or deeply 3-lobed.

Peduncles solitary; ovary narrowly ellipsoidal (Peru). 89. *P. tenella.*

Peduncles usually in pairs; ovary globose or ovoid.

Fruit ovoid or obovoid; leaves membranous, drying purple-red (Colombia). 90. *P. erythrophylla.*

Fruit globose; leaves subcoriaceous or membranous, drying green.

Leaves densely villosulous beneath, the middle lobe reduced, the lateral lobes ascending (Haiti). . . . . 91. *P. Ekmanii.*

Leaves essentially glabrous, the middle lobe equaling or exceeding the lateral lobes, the latter usually divaricate.

Operculum densely and minutely fimbrillate; lobes of leaves acute or subacute (Colombia). . . . . 92. *P. micrantha.*

Operculum not fimbrillate; lobes of leaves rounded or truncate.

Leaves 3-lobed about to middle, less than twice as broad as long (United States and northern Mexico)...93. *P. affinis.*

Leaves subtruncately 3-lobed, fully twice as broad as long.

Outer corona filaments narrowly linear-clavate, the inner ones filiform throughout (Colombia).
94. *P. bucaramangensis.*

Outer corona filaments terete, not dilated at apex, the inner ones capitellate (Peru).....95. *P. obtusiloba.*

C. Flowers more than 2.5 cm. wide.

Outer corona filaments trigonous.....71. *P. cuneata.*

Outer corona filaments not trigonous.

Leaves lobed at least to middle, the middle lobe usually reduced to a mere cusp, the lobes suberect (Mexico and Central America).

Flowers bluish purple and white; outer corona filaments capillary; petals half as long as the sepals (Central America)....96. *P. Standleyi.*

Flowers red and white; outer corona filaments narrowly linear; petals barely a third as long as the sepals (Arizona and Mexico).
97. *P. mexicana.*

Leaves lobed not more than to middle, often subtruncate or undulate at upper margin.

Lobes of leaves acute.....98. *P. anfracta.*

Lobes of leaves obtuse.

Plant glabrous throughout.

Outer corona ligulate, dilated just above middle; petals linear-oblong (Lesser Antilles).....99. *P. Andersonii.*

Outer corona filaments clavate; petals ovate (Amazonian Brazil).100. *P. micropetala.*

Plant pubescent; leaves green or sometimes paler beneath, but not glaucous.

Ovary pilose; petals less than half as long as the sepals; outer corona filaments narrowly linear-clavate; leaves suborbicular in general outline (Lesser Antilles).
101. *P. rotundifolia.*

Ovary glabrous; petals at least half as long as the sepals; outer corona filaments filiform; leaves of variable shape (Bolivia and Brazil).....102. *P. Pohlii.*

Subgenus V. **Plectostemma,** Section 4. **Xerogona**

Leaves not lobed.

Leaves attenuate-acuminate, finely pilosulous beneath; corona filaments linear-clavate (Guatemala).....103. *P. cobanensis.*

Leaves acute or acuminate, softly velutinous beneath; corona filaments subulate (British Honduras).....104. *P. brevipes.*

Leaves bilobed.

Stem and leaves hirsute with long, light brown hairs; leaves rounded at base, usually much longer than broad (Guatemala to Costa Rica).....105. *P. costaricensis.*

Stem and leaves short-grayish-pubescent or occasionally tomentulous.

Seeds sharply quadrangular; flowers less than 1.5 cm. wide (Mexico).....106. *P. goniosperma.*

Seeds not quadrangular, flattened; flowers more than 1.5 cm. wide (often smaller in *P. Conzattiana*).

Flowers less than 2 cm. wide; leaves nearly truncate at apex (Mexico).....107. *P. Conzattiana.*

Flowers more than 2 cm. wide; leaves usually deeply lobed.

Peduncles borne in pairs on short, axillary branches; leaves longer than broad, the lobes suberect (Mexico).
108. *P. Rovirosae.*

Peduncles solitary in the axils of the leaves of the main stem; leaves usually broader than long, lobes divergent.

Fruit fusiform, tapering at apex; ovary glabrescent or usually puberulent; sepals greenish white.
109. *P. capsularis.*

Fruit obovoid or elliptic-obovoid, rounded at apex; ovary densely white-pilose; sepals red without.
110. *P. rubra.*

Subgenus V. **Plectostemma,** Section 5. **Pseudodysosmia**

One species.....111. *P. adenopoda.*

Subgenus V. **Plectostemma,** Section 6. **Pseudogranadilla**

Peduncles more than 5 cm. long, about 5 times as long as the petioles; plant glabrous.....112. *P. pulchella.*

Peduncles less than 5 cm. long, equaling or not more than twice as long as the petioles; plant (except *P. menispermacea*) densely pubescent.

Leaves bilobed one-third to one-half their length (Ecuador). 113. *P. indecora.*

Leaves truncately 2–3-lobed at apex.

Bracts flabellate-lacerate (southern Mexico). 114. *P. rugosissima.*

Bracts entire or obscurely toothed.

Leaves glabrous; bracts more than 1 cm. long (Colombia). 115. *P. menispermacea.*

Leaves ferruginous-tomentose beneath; bracts not more than 1 cm. long.

Bracts oblanceolate, less than 5 mm. wide, not enclosing the bud (Colombia and Venezuela)....116. *P. Kalbreyeri.*

Bracts cordate, more than 5 mm. wide, enclosing the bud (Central Mexico to Guatemala)..117. *P. porphyretica.*

Subgenus V. **Plectostemma,** Section 7. **Hahniopathanthus**

Sepals and petals radiate, not more than 3 cm. long; fruit globose.

Stipules setiferous-toothed; bracts less than 3 cm. long, denticulate toward base.....118. *P. Hahnii.*

Stipules merely crenate; bracts more than 3 cm. long, entire. 119. *P. Cookii.*

Sepals and petals erect, more than 3 cm. long; fruit ovoid. 120. *P. membranacea.*

Subgenus VI. **Chloropathanthus**

Flowers green; leaves peltate; petioles glandular at or below middle; plant glabrous (Mexico).....121. *P. viridiflora.*

Flowers scarlet; leaves not peltate; petioles glandular near apex; plant pilose (Jamaica).....122. *P. lancifolia.*

Subgenus VII. **Murucuja**

Leaves orbicular, shallowly 3-lobed (Hispaniola)..123. *P. orbiculata.*

Leaves oblong, ovate, or transversely oblong, shallowly 2–3-lobed, or deeply 2-lobed with divergent lobes.

Sepals spatulate, conspicuously narrowed at base; corona less than 1 cm. long (Cuba).....124. *P. Shaferi.*

Sepals linear-oblong, not narrowed at base; corona more than 1 cm. long.

Leaves usually much broader than long; operculum entire; corona reddish or purplish; limen none..125. *P. Murucuja.*

Leaves longer than broad; operculum lacerate; corona yellowish; limen present (Puerto Rico).....126. *P. Tulae.*

Subgenus VIII. **Pseudomurucuja**

Sepals linear-subulate, the petals oblanceolate, broader than the sepals; leaves usually deeply cordate and amplexicaul (Jamaica). 127. *P. perfoliata.*

Sepals and petals linear or linear-oblong, the petals narrower than the sepals; leaves rounded or acute at base, not amplexicaul.

Leaves entire, ovate to elliptic (Bahamas, Cuba, and Haiti). 128. *P. cuprea.*

Leaves 2–3-lobed.

Inflorescence pseudoracemose, the leaves of the flowering branches greatly reduced or none; leaves longer than broad (Jamaica).....129. *P. oblongata.*

Inflorescence not pseudoracemose; leaves broader than long or, if longer than broad, 2-lobed to the middle.

Operculum dependent, lacerate (Jamaica). 130. *P. tacsonioides.*

Operculum erect, denticulate (Cuba).....131. *P. cubensis.*

Subgenus IX. **Psilanthus**

Calyx tube more than 2 cm. long, much exceeding the sepals; leaves much longer than broad (Colombia).

Leaves glabrous, or puberulent on the nerves beneath; calyx tube 2.5 to 8 cm. long.

Calyx dilated at base; ovary glabrous.....132. *P. bicuspidata.*

Calyx acute at base; ovary hirsute-tomentose. 133. *P. hyacinthiflora.*

Leaves tomentose beneath, 3-lobed at apex; calyx tube more than 8 cm. long.....134. *P. trinervia.*

Calyx tube not more than 2 cm. long, subequal to or shorter than the sepals; leaves broader than long (Ecuador).
135. *P. sanguinolenta.*

Subgenus X. **Adenosepala**

One species.....136. *P. Ernesti.*

Subgenus XI. **Tacsoniopsis**

One species.....137. *P. bracteosa.*

Subgenus XII. **Rathea**

One species.....138. *P. andina.*

Subgenus XIII. **Tacsonia**

A. Peduncles slender, elongate (12 to 30 cm. long when developed), pendent; leaves generally polymorphic (entire or 3-lobed in the same species).

Calyx tube longer than the sepals; bracts entire to dentate.

Corona tuberculate or obsolescent (Colombia).

Sepals with a broadly winged keel; flowers orange.
139. *P. Parritae.*

Sepals without a broadly winged keel.

Bracts free to base.

Leaves densely hirsute-tomentose beneath; bracts entire.
140. *P. cremastantha.*

Leaves villous beneath; bracts incised-dentate.
141. *P. leptomischa.*

Bracts united below middle.

Stipules laciniate-fimbriate; calyx tube finely pilosulous.
142. *P. fimbriatistipula.*

Stipules serrate; calyx tube glabrous.143. *P. quindiensis.*

Corona filamentose.

Leaves densely ferruginous-tomentose beneath, rugulose above, the middle lobe not narrowed at base (Ecuador).
144. *P. coactilis.*

Leaves grayish-villous beneath, flat above, the middle lobe (if leaves are 3-lobed) narrowed at base (Colombia).
145. *P. flexipes.*

Calyx tube shorter than the sepals; bracts fimbriate.
146. *P. insignis.*

A. Peduncles rather stout, not more than 10 cm. long (sometimes longer in *P. ampullacea* and *P. Mandoni*); leaves either all 3-lobed or 3-foliolate, or all undivided (i.e., uniform in each species).

B. Leaves not lobed.

Apex of leaves rounded or obtuse (Colombia)..147. *P. adulterina.*

Apex of leaves acute or acuminate.

Bracts distinct to base (Colombia and Venezuela).

Stipules setaceous to linear-lanceolate, entire.

Margin of leaves subentire or slightly denticulate, revolute.....148. *P. lanata.*

Margin of leaves serrate or dentate, scarcely revolute.

Leaves less than 7.5 cm. long; calyx tube and ovary glabrous.....149. *P. truxillensis.*

Leaves more than 7.5 cm. long; calyx tube pubescent without; ovary tomentose..150. *P. pamplonensis.*

Stipules deeply pinnatisect; leaves glabrous (Peru).
151. *P. lanceolata.*

Bracts united one-third to two-thirds their length (Colombia).

Stem glabrous; stipules reniform, fimbriate.
142. *P. fimbriatistipula.*

Stem rufo-villous; stipules linear.

Calyx tube not more than 7 cm. long; leaves strongly rugose; corona undulate.....152. *P. rugosa.*

Calyx tube more than 7 cm. long; leaves rugulose; corona not undulate.....153. *P. eriocaula.*

B. Leaves 3-lobed or 3-foliolate.

C. Bracts free to base, usually serrate to lacerate.

Stipules linear, entire or serrulate.

Plant densely villous; peduncles at least 8 cm. long, stout; flowers white (Ecuador).....154. *P. ampullacea.*

Plant essentially glabrous; peduncles less than 8 cm. long, slender; flowers reddish or yellowish.

Calyx tube less than 3.5 cm. long; leaf lobes ovate-oblong, fully 5 mm. wide (Peru and Bolivia).
155. *P. gracilens.*

Calyx tube more than 3.5 cm. long (Colombia).

Leaf lobes 5 mm. or less wide; corona 1-ranked; calyx tube more than 6 mm. long.....156. *P. Trianae.*

Leaf lobes more than 5 mm. wide; corona 2-ranked; calyx tube not more than 6 cm. long.

157. *P. Purdiei.*

Stipules laciniate-pectinate or pinnatisect.

Leaves 3-foliolate (Peru).....158. *P. trifoliata.*

Leaves 3-lobed.

Stipules laciniate-pectinate; leaves glabrous beneath; corona tuberculate (Ecuador) ....159. *P. Jamesoni.*

Stipules pinnatisect; leaves tomentose beneath; corona filamentose.

Calyx tube slightly longer than the sepals, more than 8 mm. in diameter; leaves lobed at least half their length, grayish-tomentose beneath.

160. *P. pinnatistipula.*

Calyx tube nearly twice as long as the sepals, less than 8 mm. in diameter; leaves lobed not more than one-third their length, ferruginous-tomentose beneath (Bolivia).....161. *P. Mandoni.*

C. Bracts united, at least at base, usually up to middle.

Stipules linear or setaceous.

Leaves rounded or cordate at base, pubescent on both surfaces; peduncles more than 5 cm. long; flowers white; gynophore glabrous (Ecuador).

154. *P. ampullacea.*

Leaves cuneate at base, glabrous above; peduncles less than 5 cm. long; flowers rose; gynophore densely pilose (Peru).....162. *P. Matthewsii.*

Stipules oblong, ovate, or subreniform.

Leaves small, less than 4 cm. long and 6 cm. wide; peduncles very slender; flowers red (Peru).....163. *P. parvifolia.*

Leaves usually larger; peduncles stouter.

Flowers blue, violet, or magenta; plant glabrous (not in *P. Roseorum*); petioles strikingly biglandular at apex.

Stipules oblong, closely laciniate-dentate; stem and under surface of leaves densely tomentose (Ecuador).....164. *P. Roseorum.*

Stipules subreniform, entire or few-toothed; stem and under surface of leaves glabrous.

Calyx tube less than 5 cm. long (Colombia). 165. *P. glaberrima.*

Calyx tube more than 5 cm. long (Colombia and Ecuador).....166. *P. cumbalensis.*

Flowers red or pinkish; petioles variously glandular.

Calyx tube less than 6.5 cm. long.

Leaves and calyx tube glabrous (Peru). 167. *P. macrochlamys.*

Leaves pilosulous beneath; calyx tube densely tomentose (Colombia).....168. *P. Schlimiana.*

Calyx tube at least 6.5 cm. long.

Stipules more than 2.5 cm. long; leaves thick-coriaceous, lustrous above; plant glabrous (Peru).....169. *P. anastomosans.*

Stipules less than 2.5 cm. long; plant more or less pubescent, often densely ferruginous-tomentose.

Stem terete, only the younger parts subangular.

Calyx tube less than 6 mm. in diameter; free portions of bracts narrowly lanceolate (Ecuador).....170. *P. psilantha.*

Calyx tube more than 6 mm. in diameter; free portions of bracts ovate or ovate-lanceolate.

Leaf lobes linear-oblong, less than 2 cm. wide; stem and under surface of leaves grayish-pilosulous (Ecuador)..171. *P. tripartita.*

Leaf lobes ovate to oblong, usually more than 2 cm. wide; stem ferruginous-tomentose; under surface of leaves grayish- or ferruginous-tomentose. 172. *P. mollissima.*

Stem distinctly angular.

Petioles obscurely 4–12-glandular, the glands less than 1.5 mm. long; leaves rounded or abruptly cuneate at base....173. *P. mixta.*

Petioles 2–3-glandular at middle, the glands at least 1.5 mm. long; leaves auriculate or cordulate at base (Peru).174. *P. mesadenia.*

Subgenus XIV. **Granadillastrum**

Leaves 3-lobed not more than four-fifths their length (often entire in *P. antioquiensis*); bracts entire or serrate.

Plant glabrous; bracts distinct to base (Venezuela and Colombia). 175. *P. semiciliosa.*

Plant sparingly to densely pubescent, the leaves densely tomentose or at least tomentellous on the nerves beneath; bracts distinct to base or connate below middle.

Peduncles less than 8 cm. long; leaves usually lobed not more than to middle; flowers scarlet.....176. *P. manicata.*

Peduncles more than 8 cm. long; leaves not lobed, or 3-lobed nearly to base.

Bracts distinct to base; peduncles very slender; leaves polymorphic, entire or 3-lobed; flowers red (Colombia). 177. *P. antioquiensis.*

Bracts united to middle; peduncles stout; leaves all 3-lobed; flowers white (Peru).....178. *P. peduncularis.*

Leaves 3-foliolate; bracts lacerate-serrate or laciniate-fimbriate (Peru and Bolivia).

Plant glabrous; bracts lacerate-serrate.....179. *P. Weberbaueri.*

Plant densely tomentose; bracts deeply laciniate-fimbriate. 180. *P. trisecta.*

Subgenus XV. **Distephana**

Leaves coriaceous or subcoriaceous, entire at margin.

Calyx tube cylindric, more than 1 cm. long; outer rank of corona of free filaments.....181. *P. glandulosa.*

Calyx tube broadly campanulate, less than 1 cm. long; outer rank of corona a tubular membrane, filamentose only at margin.....182. *P. variolata.*

Leaves membranous, toothed.

Stipules and bracts laciniate-fimbriate or incised-serrate (Bolivia).

Leaves unlobed; stipules pinnatisect; bracts laciniate-fimbriate; plant lanate.....183. *P. callimorpha.*

Leaves 3-lobed; stipules and bracts incised-serrate; plant glabrous.....184. *P. Buchtienii.*

Stipules and bracts entire or merely glandular-serrate.

Bracts ovate, at least 1 cm. wide; two outer ranks of corona filaments purple distally, white proximally; leaves never lobed.....185. *P. coccinea.*

Bracts linear to oblong-lanceolate, usually less than 1 cm. wide (broadly ovate and wider in two varieties); two outer ranks of corona filaments red or white; leaves polymorphic in the same species, 3 (or asymmetrically 2)-lobed or unlobed.

Plant essentially glabrous; bracts usually linear, less than 5 mm. wide (broader in variety) . 186. *P. quadriglandulosa.*

Plant pubescent; bracts lanceolate or oblong-lanceolate, usually 5 to 10 mm. wide; leaves prevailingly 3-lobed.

Outer ranks of corona filaments red; operculum fimbriate (Central America and northwestern South America). 187. *P. vitifolia.*

Outer ranks of corona filaments white; operculum crenate or denticulate (Brazil) . . . . . 188. *P. speciosa.*

Subgenus XVI. **Calopathanthus**

One species . . . . . 189. *P. racemosa.*

Subgenus XVII. **Tacsonioides**

Plant villosulous; leaves entire or asymmetrically 3-lobed; bracts lacerate-pectinate (Brazil) . . . . . 190. *P. Luetzelburgii.*

Plant glabrous; leaves symmetrically 3-lobed; bracts entire or serrulate.

Leaves peltate, hastate, the lateral lobes divergent at nearly right angles from the much longer middle lobe (Ecuador). 191. *P. reflexiflora.*

Leaves not peltate, the lateral lobes ascending, subequal to the middle lobe.

Bracts not more than 6 mm. wide, narrowed at base (Peru). 192. *P. tarapotina.*

Bracts more than 6 mm. wide, cordate at base.

Leaves cordulate; bracts cordate; peduncles stout; corona 5-ranked (Bolivia and Argentina) . . . . 193. *P. umbilicata.*

Leaves rounded or subtruncate at base; bracts oblong; peduncles slender; corona 2-ranked (Brazil). 194. *P. Mendoncaei.*

Subgenus XVIII. **Granadilla**

KEY TO SERIES

Stem quadrangular, the angles narrowly to broadly winged; seeds more than 5 mm. wide . . . . . Series 1. *Quadrangulares.*

Stem terete or angular, the angles not winged; seeds not more than 5 mm. wide.

Bracts united, at least at base, more than 2 cm. long, enveloping the bud.

Leaves 5–7-lobed.....Series 2. *Digitatae.*

Leaves entire to 3-lobed (polymorphic)...Series 3. *Tiliaefoliae.*

Bracts distinct to base.

Stipules linear or setaceous, usually soon deciduous.

Leaves neither lobed nor parted.

Bracts less than 1 cm. long, acute; leaves lanceolate, less than 2.5 cm. wide; petioles glandless (Brazil).
Series 4. *Marginatae.*

Bracts more than 1 cm. long, rounded at apex; leaves oblong or oblong-lanceolate, more than 2.5 cm. wide (narrower in *P. capparidifolia*); petioles biglandular (glandless in *P. Popenovii*).

Plants glabrous; leaves entire or serrulate (all exclusively South American except *P. laurifolia* and *P. ambigua*).
Series 5. *Laurifoliae.*

Plants pubescent; leaves serrate or serrulate.
Series 6. *Serratifoliae.*

Leaves 3–7-lobed, or compound.

Sepals glandular dorsally; corona 1-ranked (Brazil).
Series 7. *Setaceae.*

Sepals not glandular; corona in 2 or more ranks.

Bracts fimbriate; leaves definitely compound, the leaflets all petiolulate (West Indies and northern South America).....Series 8. *Pedatae.*

Bracts entire or serrulate; leaves lobed, if compound, only the terminal leaflet petiolulate.

Corona more than 2-ranked; petiolar glands present; operculum denticulate or fimbriate.
Series 9. *Incarnatae.*

Corona 2-ranked; petiolar glands none; operculum entire (Bolivia and Argentina).
Series 10. *Palmatisectae.*

Stipules foliaceous, semi-ovate to semi-oblong, attached on one side above base, hence often appearing reniform.

Bracts setaceous or narrowly ovate, less than 5 mm. wide, scattered along peduncle, soon deciduous; operculum more or less plicate, bearing on outside a row of filaments. Series 11. *Kermesinae.*

Bracts foliaceous, usually more than 5 mm. wide, verticillate, rarely imbricate.

Bracts imbricate, unequal, one smaller than the others and borne a short distance below them. Series 12. *Imbricatae.*

Bracts verticillate, borne near apex of peduncle.

Leaves not lobed.....Series 13. *Simplicifoliae.*

Leaves lobed.

Plants essentially glabrous (leaves tomentose beneath in *P. Gardneri*), not hispid-hirsute. Series 14. *Lobatae.*

Plants hispid-hirsute throughout. Series 15. *Menispermifoliae.*

Series 1. **Quadrangulares**

Petioles 6-glandular; nerves of leaves 10 or more to a side, nearly equidistant from each other; stipules ovate to lance-ovate, more than 1 cm. wide.....195. *P. quadrangularis.*

Petioles 2–4-glandular; nerves about 8 to a side, those of the upper half of blade farther apart than those of the lower; stipules linear to linear-lanceolate, not more than 1 cm. wide..196. *P. alata.*

Series 2. **Digitatae**

One species.....197. *P. serrato-digitata.*

Series 3. **Tiliaefoliae**

Petiolar glands liguliform (often appearing filiform when dry), at least 3 mm. long. Leaves usually not lobed..198. *P. ligularis.*

Petiolar glands not liguliform, less than 3 mm. long, sessile or short-stipitate.

Glands borne at apex of petiole (often a second pair near middle); stipules foliaceous (narrowly linear only in *P. Seemanni* and sometimes in *P. tiliaefolia*).

Operculum filamentose, the filaments erect, at least 5 mm. long; stipules oblanceolate (Mexico and Guatemala). 199. *P. Nelsoni.*

Operculum entire or minutely denticulate; stipules cordate-ovate or linear.

Calyx tube campanulate-funnel-shaped, lined within with numerous rows of tubercles; stipules narrowly linear (Panama and Colombia).....200. *P. Seemanni.*

Calyx tube campanulate, not lined with rows of tubercles; stipules ovate or ovate-lanceolate (rarely the uppermost linear-lanceolate).

Leaves minutely denticulate, usually 3-lobed, the basal lobes often overlapping; corona 3-ranked, the inner rank dentiform; bracts united at base only (Peru and Bolivia).....201. *P. triloba.*

Leaves entire at margin, never lobed; corona about 5-ranked, the 3 inner ranks consisting of short filaments; bracts united about a third their length.
202. *P. tiliaefolia.*

Glands all borne at or below middle of petiole; stipules narrowly linear.

Leaves not lobed; ovary subglobose (common cultivated species of West Indies, rarer in northern South America).
203. *P. maliformis.*

Leaves usually lobed, or polymorphic, the upper sometimes entire; ovary narrowly ovoid or ellipsoidal.

Ovary white-tomentose; plant pilosulous (Panama).
204. *P. Williamsii.*

Ovary glabrous; plant glabrous or pilosulous.

Lateral leaf lobes nearly equal to middle lobe, the latter usually broadly ovate (Costa Rica and Panama).
205. *P. platyloba.*

Lateral leaf lobes barely half as long as middle lobe, the latter ovate or ovate-lanceolate (Trinidad and northern South America).

Bracts subobtuse or acute, the tips less than 1 cm. long (northern South America).....206. *P. serrulata.*

Bracts long-tapering, the tips more than 1 cm. long (Venezuela).....207. *P. multiformis.*

Series 4. **Marginatae**

One species.....208. *P. marginata.*

Series 5. **Laurifoliae**

Outermost rank of corona filaments shorter than the second rank.

Leaves narrowly oblong, at least three times as long as broad, rounded at apex (British Guiana).....209. *P. capparidifolia.*

Leaves broader, less than three (rarely more than two) times as long as broad.

Petiolar glands usually wanting; peduncles very slender, more than 7 cm. long (Ecuador).....210. *P. Popenovii.*

Petiolar glands always present; peduncles stout, rarely as much as 7 cm. long.

Corona 2-ranked; operculum filamentose to base (Bolivia). 211. *P. nigradenia.*

Corona 2–several-ranked; operculum membranous, at least part way.

Glands borne at or below middle of petiole; third rank of corona remote from the second rank; leaves subabruptly attenuate-acuminate (Mexico and Central America). 212. *P. ambigua.*

Glands borne at apex of petiole; third rank of corona adjacent to the second rank; leaves prevailingly rounded or obtuse at apex (common cultivated species of the West Indies and northern South America). 213. *P. laurifolia.*

Outermost rank of corona filaments equaling or exceeding the second rank.

Ovary pubescent.

Outermost corona filaments and those of the second rank very slender, filiform above middle.

Bracts entire, 1 cm. or more wide, green; leaves not more than 5 cm. wide (Amazonian Brazil). 214. *P. acuminata.*

Bracts glandular-serrate, less than 1 cm. wide, reddish; leaves more than 5 cm. wide (British Guiana). 215. *P. Gleasoni.*

Outermost corona filaments and those of the second rank thick-carnose, the latter about 2 mm. wide.

Flowers glabrous without, borne on short, axillary branches (Amazon Basin).....216. *P. riparia.*

Flowers pubescent without, borne in the leaf axils of the main stem (mountains of Colombia).....217. *P. tolimana.*

Ovary glabrous.

Leaves 3–5-nerved, conspicuously crenulate-serrulate (southeastern Brazil).....218. *P. odontophylla.*

Leaves penninerved, entire or inconspicuously serrulate.

Peduncles at least 7 cm. long; bracts thin-membranous, violet-rose (southern Brazil).....219. *P. ischnoclada.*

Peduncles less than 7 cm. long; bracts membranous or subcoriaceous, green.

Outermost corona filaments succulent, 1 mm. thick, at least in the lower half; bracts more than 1.5 cm. wide; plant often turning black in drying.....220. *P. nitida.*

Outermost corona filaments very slender, less than 0.5 mm. thick; bracts less than 1.5 cm. wide.
221. *P. guazumaefolia.*

Series 6. **Serratifoliae**

Outer series of corona filaments not more than 1 cm. long (Brazil).

Flowers in clusters of 2 to 6, up to 3 cm. wide; bracts linear-lanceolate, not more than 2 mm. wide.....222. *P. bahiensis.*

Flowers solitary, much more than 3 cm. wide; bracts ovate to oblong, more than 2 mm. wide.....223. *P. malacophylla.*

Outer corona filaments more than 1 cm. long.

Leaves not lobed, minutely serrulate; petioles 4–6-glandular (Mexico and Central America).....224. *P. serratifolia.*

Leaves polymorphic, entire to 3-lobed, repand-serrate; petioles obsoletely biglandular at apex (Cuba)....225. *P. dasyadenia.*

Series 7. **Setaceae**

One species.....226. *P. setacea.*

Series 8. **Pedatae**

One species.....227. *P. pedata.*

Series 9. **Incarnatae**

Leaves 5-lobed or 5-parted to base (rarely in *P. cincinnata* 3-lobed or 3-parted nearly to base).

Petioles biglandular near base; leaves 3–5-lobed or 3–5-parted, the terminal segment usually petiolulate..228. *P. cincinnata.*

Petioles biglandular above middle; leaves 5-lobed.
229. *P. filamentosa.*

Leaves 3-lobed.

Bracts borne about 1 cm. below base of flower; petioles biglandular at base; leaf lobes rounded (Brazil).....230. *P. recurva.*

Bracts borne within 5 mm. of base of flower; leaf lobes acute, acuminate, or cuspidate.

Leaf lobes cuspidate; bracts about 5 cm. long (Guatemala).
231. *P. prolata.*

Leaf lobes acute or acuminate; bracts much shorter.

Plant usually pilosulous; bracts less than 1 cm. long; leaves dull above (United States).....232. *P. incarnata.*

Plant usually glabrous; bracts 1 cm. or more long; leaves lustrous above.....233. *P. edulis.*

Series 10. **Palmatisectae**

One species.....234. *P. palmatisecta.*

Series 11. **Kermesinae**

Leaves 3-lobed; plants glabrous.

Peduncles more than 9 cm. long.

Flowers more than 5 cm. wide; leaves lobed to slightly below middle, the lobes oblong, rounded or subacute (Brazil).
235. *P. kermesina.*

Flowers less than 5 cm. wide; leaves lobed nearly to base, the lobes narrowly lanceolate, acuminate (Colombia).
236. *P. Lehmanni.*

Peduncles 3 to 7 cm. long.

Leaf lobes lanceolate or oblong-lanceolate, acuminate, at least four-fifths the length of the blade (Colombia).
237. *P. trisulca.*

Leaf lobes oblong, obtuse or subacute, less than four-fifths the length of the blade.

Bracts lanceolate, more than 5 mm. long; peduncles more than 5 cm. long (Colombia).....238. *P. Smithii.*

Bracts setaceous, barely 2 mm. long; peduncles 5 cm. long, or less (Brazil).....239. *P. Watsoniana.*

Leaves entire.

Plant pilosulous; peduncles more than 8 cm. long (Ecuador).
240. *P. Eggersii.*

Plant glabrous; peduncles not more than 8 cm. long.

Petiolar glands stipitate, less than 0.2 mm. in diameter; leaves not more than 7 cm. long (Brazil).....241. *P. Miersii.*

Petiolar glands sessile or subsessile, about 1 mm. in diameter; leaves more than 7 cm. long (Bolivia)...242. *P. Guentheri.*

Series 12. **Imbricatae**

Principal corona filaments in a single series, very slender, concolorous, the inner filaments more than 1 mm. long; sepals awned (Peru).....243. *P. cuzcoensis.*

Principal corona filaments in 2 series, coarse, banded with blue and white, the inner filaments reduced to tubercles not more than 1 mm. long; sepals not awned (eastern Brazil).244. *P. sidaefolia.*

Series 13. **Simplicifoliae**

Peduncles stout, as thick as the stem (peduncles and stem slender in *P. subrotunda*); sepals linear, more than four times as long as the tube.

Flowers red; bracts obtuse (Colombia).....245. *P. longipes.*

Flowers white, blue, or yellowish; bracts acute (Brazil).

Leaves broadly ovate to subrotund, not more than 5 cm. long, 3–5-nerved.

Stem and peduncles stout, about 2 mm. thick; leaves and stipules coriaceous; flowers 8 to 10 cm. wide, white. 246. *P. mucronata.*

Stem and peduncles slender, not more than 1.5 mm. thick; leaves and stipules membranous; flowers about 2.5 cm. wide, deep blue.....247. *P. subrotunda.*

Leaves oblong-lanceolate, more than 5 cm. long, 1-nerved. 248. *P. Galbana.*

Peduncles less than the diameter of the stem; sepals oblong or linear-oblong, not more than 4 times as long as the tube.

A. Petiolar glands sessile or subsessile (filiform in *P. Jileki*), less than 1 mm. long.

Sepals linear-oblong or linear-lanceolate; outer corona filaments shorter than the sepals and petals; stipules soon deciduous.

Petals and inside of sepals bright red; flowers 8 to 9 cm. wide when expanded (Brazil?).....249. *P. amabilis.*

Petals and inside of sepals white; flowers about 6 cm. wide when expanded (Bolivia).....250. *P. mapiriensis.*

Sepals oblong or oblong-lanceolate; outer corona filaments subequaling or longer than the sepals and petals; stipules persistent.

Leaves thick-coriaceous, lanceolate or ovate-lanceolate, often chartaceous at the margin; peduncles more than 4 cm. long (Brazil).....251. *P. Jileki.*

Leaves membranous or subcoriaceous, ovate to oblong or broadly ovate-lanceolate, not cartilaginous at margin; peduncles not more than 4 cm. long.

Stipules long-awned, the awn fully half the length of the blade; petals conspicuously reticulate-veined, longer than the sepals (British Guiana). 252. *P. retipetala.*

Stipules with shorter awns; petals inconspicuously, if at all, veined, shorter than the sepals (Brazil). 253. *P. actinia.*

A. Petiolar glands filiform, 1 mm. or more long.

Under surface of leaves and outside of sepals densely cinereo-puberulent (Brazil).....254. *P. canescens.*

Under surface of leaves and outside of sepals glabrous, pilose, or pilosulous.

Stem and under surface of leaves densely pilose; petiolar glands 1.5 mm. or more long, curved. 255. *P. praeacuta.*

Stem and under surface of leaves glabrous or pilosulous; petiolar glands 1 to 1.5 mm. long, straight.

Stipules more than 4 mm. wide, mucronulate; calyx tube up to 5 mm. long.

Bracts less than 1 cm. wide, deciduous; leaves glaucous beneath, the nerves scarcely elevated beneath (Mexico to Venezuela). 256. *P. Oerstedii.*

Bracts 1 cm. wide or more, persistent; leaves green beneath, the nerves strongly elevated beneath (Amazonian Peru).....257. *P. loretensis.*

Stipules not more than 4 mm. wide, caudate-acuminate; calyx tube more than 5 mm. long (Bolivia and Paraguay).....258. *P. Rojasii.*

Series 14. **Lobatae**

Stem villous; leaves tomentose beneath (Brazil) . 259. *P. Gardneri.*

Stem and leaves glabrous, or essentially so.

Leaves 5–9-lobed nearly to base, rarely a few of the leaves 3-lobed. (Extensively cultivated throughout tropics.) . . 260. *P. caerulea.*

Leaves 3-lobed or 3-sect.

Petiolar glands 2, at least 1 mm. wide; leaves cuneate at base, coriaceous (Argentina) . . . . . 261. *P. Mooreana.*

Petiolar glands usually several, less than 1 mm. wide; leaves cordulate, rounded, or subtruncate.

Leaves 3-sect to within 2 mm. of base (Bolivia). 262. *P. dalechampioides.*

Leaves 3-lobed, rarely more than four-fifths their length.

A. Bracts borne close to apex of peduncle, their length at least equal to the distance from their point of origin to the base of the flower; petiolar glands usually stipitate.

B. Sepals dorsally awned with a foliaceous awn 5 mm. long, or more.

Ovary ferruginous-villous-tomentose; flowers blue, violet, or purplish.

Bracts oblong, cordate at base; flowers about 5 cm. wide; outer corona filaments linear-ligulate (Brazil) . . . . . 263. *P. cornuta.*

Bracts elliptic-oblong or narrowly lanceolate, narrowed at base; flowers larger; outer corona filaments filiform or ligulate.

Peduncles usually 6 cm. or more long, stout; stipules usually at least half as long as adjacent petioles; awn of sepals more than 8 mm. long; corona 6–7-ranked, the outer filaments filiform . . . . . 264. *P. violacea.*

Peduncles less than 6 cm. long, slender; stipules less than half as long as adjacent petioles; awn of sepals 8 mm. long or less; corona 4–5-ranked, the outer filaments liguliform. 265. *P. amethystina.*

Ovary glabrous; flowers white (blue to purplish in a few species).

Bracts petiolate, rounded at apex (Surinam, Brazil). 266. *P. picturata.*

Bracts sessile, usually acute or subacute at apex.

Leaves peltate at least 5 mm. from lower margin.

Bracts more than 7 mm. long, borne at base of flowers; awn of sepals more than 5 mm. long (Bolivia).....267. *P. rubrotincta.*

Bracts not more than 7 mm. long, borne at least 5 mm. below base of flower; awn of sepals less than 5 mm. long (Peru). 268. *P. spectabilis.*

Leaves not peltate or only slightly so.

C. Operculum denticulate or minutely fimbrillate at margin, the entire portion much longer than the teeth or fringe.

Petiolar glands present; inner ranks of corona filaments capitellate.

Leaves lobed at least to middle; outer two rows of corona filaments filiform (Mexico to Colombia and Venezuela). 269. *P. subpeltata.*

Leaves less deeply lobed; outer two rows of filaments more slender.

Bracts more than 1.5 cm. long, borne at base of flower; leaves lobed about one-third their length (Cuba and Haiti).....270. *P. pallens.*

Bracts less than 1.5 cm. long, borne at least 5 mm. below base of flower; leaves lobed about one-quarter their length (Brazil).....271. *P. elegans.*

Petiolar glands none; inner ranks of corona filaments not capitellate (Bolivia to Argentina).

Leaf lobes oblong, less than three times longer than broad..272. *P. naviculata.*

Leaf lobes linear-lanceolate, more than three times longer than broad. 273. *P. tucumanensis.*

C. Operculum filamentose, the filaments equaling or longer than the membranous lower portion.

Peduncles 25 to 35 cm. long (Venezuela).
274. *P. gritensis.*

Peduncles not more than 10 cm. long.

Flowers lilac or purple; leaf lobes acute or acuminate.

Under surface of leaves usually finely pilosulous, the upper surface lustrous (Central America).
256. *P. Oerstedii* var. *choconiana.*

Under surface of leaves glabrous, the upper surface dull (Ecuador).
275. *P. Sprucei.*

Flowers white; leaf lobes usually rounded or obtuse.

Flowers not more than 4.5 cm. wide; corona filaments all capillary, less than 7 mm. long (southern Brazil and Paraguay)....276. *P. tenuifila.*

Flowers usually more than 4.5 cm. wide; outer corona filaments filiform, coarser.

Leaves lobed at least three-quarters their length, the middle lobe much narrowed at base; stipules glandular-mucronate (Brazil).
277. *P. lonchophora.*

Leaves lobed about to middle, the middle lobe scarcely narrowed at base; stipules not glandular-mucronate.

Operculum plicate; leaves acutish (Paraguay and Argentina).
278. *P. Giberti.*

Operculum flat; leaves rounded or obtuse.

Petioles 6–8-glandular; operculum with dentiform processes within (Brazil).
279. *P. Eichleriana.*

Petioles minutely biglandular; operculum smooth within.

Leaves lobed at least to middle, often glaucescent or yellowish green beneath (Peru).
280. *P. subulata.*

Leaves lobed about one-third their length, dull green, often reddish-blotched beneath (Colombia and Ecuador).
281. *P. resticulata.*

B. Sepals not awned, or awned with merely a setaceous awn less than 5 mm. long.

Leaves coriaceous, lobed about four-fifths their length, the lobes narrowly lanceolate, less than 2 cm. wide (Colombia).....282. *P. Pennellii.*

Leaves membranous, lobed about to middle, the lobes oblong or suborbicular, usually more than 2 cm. wide.

Flowers 5 to 6 cm. wide; outer corona filaments as long as the petals; lateral leaf lobes ascending.
283. *P. stipulata.*

Flowers less than 5 cm. wide; outer corona filaments about half as long as the petals; lateral leaf lobes horizontally divaricate (Peru).
284. *P. aristulata.*

A. Bracts borne 1 to 3 cm. below apex of peduncle, their length less than the distance from their point of origin to the base of the flower; petiolar glands sessile; flowers blue, violet, or purple.

Flowers 6 cm. wide or less; leaves lobed to below middle (Venezuela and Trinidad).....285. *P. cyanea.*

Flowers more than 6 cm. wide; leaves lobed only to middle.

Leaves scarcely peltate; awns of sepals more than 1 mm. long (British Guiana and Surinam).
286. *P. Garckei.*

Leaves distinctly peltate at least 5 mm. from margin; awns of sepals not more than 1 mm. long (Peru).
268. *P. spectabilis.*

Series 15. **Menispermifoliae**

Bracts narrowly lanceolate or elliptic-lanceolate, less than 5 mm. wide, minutely glandular-denticulate; leaves usually very large, more than 10 cm. wide; plant often turning black in drying.
287. *P. menispermifolia.*

Bracts ovate or ovate-lanceolate, more than 5 mm. wide, serrate or entire; leaves usually smaller, less than 8 cm. wide; plant not turning black in drying (Peru, Bolivia, and Amazonian Brazil).

Leaves ovate or ovate-lanceolate, entire or sometimes lobulate near base; petiolar glands not more than twice longer than thick.....288. *P. crassifolia.*

Leaves 3-lobed; petiolar glands more than twice longer than thick.

Ovary hirsute; leaves not hastately lobed, the middle lobe not more than two-thirds the length of the blade.
289. *P. nephrodes.*

Ovary glabrous; leaves hastately lobed, the middle lobe at least three-quarters the length of the blade...290. *P. hastifolia.*

Subgenus XIX. **Dysosmia**

Leaves not lobed, oblong. Plant hirsute or tomentose.

Plant erect, without tendrils or rarely with much reduced ones, hirsute (Brazil).....291. *P. clathrata.*

Plant subscandent, with developed tendrils, softly villosulous or tomentose (British Honduras; cultivated in Cuba).
292. *P. Urbaniana.*

Leaves 3 (occasionally 5)-lobed (subentire in *P. pectinata*).

Leaves densely lepidote beneath, not more than 3 cm. long, much broader than long, the middle lobe reduced (Brazil).
293. *P. lepidota.*

Leaves not lepidote, usually more than 3 cm. long and with a well developed middle lobe.

Plant with an erect, shrubby caudex and a few sprawling branches, with or without tendrils, exceedingly viscous

and with a dense indument; leaf lobes suborbicular (Lower California).

Outermost corona filaments much less than half as long as the petals; petals linear; gynophore at least 2 cm. long, very slender.....294. *P. Palmeri.*

Outermost corona filaments at least half as long as the petals; petals oblong or oblong-lanceolate; gynophore much less than 2 cm. long, rather stout.....295. *P. fruticosa.*

Plant an elongate vine, with well developed tendrils; middle leaf lobe usually elongate.

Sepals glandular-punctate without; glands present along main rachis of bracts; bracts once-pinnatifid (southeastern South America).....296. *P. chrysophylla.*

Sepals not glandular-punctate; glands, when present on bracts, borne at tips of ultimate segments.

Bracts pinnatifid or bipinnatifid, the segments not gland-tipped. Plants densely white- or yellowish-lanate, but lanuginous-hirsute in *P. arida* var. *cerralbensis* (Lower California).....297. *P. arida.*

Bracts deeply 2–3-pinnatifid or -pinnatisect (once pinnatifid in *P. pectinata, P. vestita,* and *P. foetida* var. *Moritziana*), the segments gland-tipped.

Leaves coriaceous or subcoriaceous, subentire or panduriform; plant glabrous (Bahamas, Bermuda, and Haiti).

Bracts pectinate or if pinnatifid the rachis at least 2 mm. wide; leaves cordate-deltoid, very obscurely lobed or entire.....298. *P. pectinata.*

Bracts deeply 2–3-pinnatisect, the rachis less than 2 mm. wide; leaves panduriform, the lateral lobes evident.....299. *P. bahamensis.*

Leaves membranous or occasionally subcoriaceous, flaccid, usually variously 3–5-lobed, not panduriform.

Seeds more than 6 mm. long and 3 mm. wide; lateral leaf lobes strongly ascending. Plant densely rufo-hirsute (Peru).....300. *P. vestita.*

Seeds not more than 6 mm. long and 3 mm. wide; lateral leaf lobes usually divergent.301. *P. foetida.*

Subgenus XX. **Dysosmioides**

Stipules lacerate-dentate or lacerate-pectinate; nerves of bracts and leaves scarcely darker than rest of blade.

Leaves lobed only to middle, the lobes ovate or broadly ovate-lanceolate; ovary glabrous or hirsute.

Segments of bracts long-aristate; leaves longer than broad, ciliate-denticulate; ovary glabrous.....302. *P. villosa.*

Segments of bracts merely acute; leaves broader than long, subentire; ovary hirsute.....303. *P. Vellozii.*

Leaves lobed nearly to base, the lobes narrowly lanceolate; ovary glabrous.....304. *P. setulosa.*

Stipules serrulate or denticulate; nerves of bracts and leaves usually much darker than rest of blade; ovary hirsute.

Leaves entire.....304. *P. hypoleuca.*

Leaves 3-lobed.....306. *P. campanulata.*

Subgenus XXI. **Polyanthea**

One species (Guianas).....307. *P. cirrhiflora.*

Subgenus XXII. **Astrophea**

KEY TO SECTIONS

Calyx tube campanulate or cylindric-campanulate, rarely cylindric, shorter than the sepals; flowers white, greenish, or greenish purple, the peduncles solitary or in pairs in the leaf axils, simple, or dichotomous.

Peduncles once to several times dichotomous, occasionally simple in *P. arborea* and *P. sphaerocarpa;* plants usually erect shrubs or trees and without tendrils.

Operculum exserted beyond throat of calyx tube.
Section 1. *Dolichostemma.*

Operculum not exserted.

Peduncles terminating in a tendril.....Section 2. *Cirrhipes.*

Peduncles not terminating in a tendril. Trees or shrubs, usually without any tendrils.....Section 3. *Euastrophea.*

Peduncles simple. Plants usually scandent, with tendrils present.

Flowers racemose, the pedicels long and slender; inner corona filaments plumose, reflexed.....Section 4. *Leptopoda.*

Flowers solitary or in pairs, the peduncles short; inner corona filaments not plumose, erect....Section 5. *Pseudoastrophea.*

Calyx tube cylindric, longer than the sepals; flowers red, yellow, or orange, in dense fascicles or in racemes or pseudoracemes. Plants usually scandent.....Section 6. *Botryastrophea.*

Section 1. **Dolichostemma**

Leaves oblanceolate, more than 15 cm. long, densely hirsutulous beneath; stem hirsutulous (Colombia).....308. *P. Haughtii.*

Leaves obovate, less than 15 cm. long, glabrous; stem at most puberulent (Costa Rica).....309. *P. Pittieri.*

Section 2. **Cirrhipes**

One species (Peru).....310. *P. cirrhipes.*

Section 3. **Euastrophea**

Calyx tube cylindric, 1 to 2 cm. long, more than 3 times as long as wide; leaves very large, averaging more than 30 cm. long, acute or acuminate.

Outer corona filaments not dilated, nearly straight (Colombia and Ecuador).....311. *P. macrophylla.*

Outer corona filaments broadly dilated near apex, geniculate above and below middle (Ecuador; Peru?).....312. *P. gigantifolia.*

Calyx tube campanulate or funnel-shaped (cylindric-campanulate in *P. arborea*), not more than 1 cm. long; leaves smaller, often obtuse.

Calyx tube cylindric-campanulate, the length greater than the diameter at the throat (Colombia).....313. *P. arborea.*

Calyx tube campanulate or funnel-shaped, the length and the diameter at the throat subequal.

Branchlets and under surface of leaves pubescent.

Leaves 20 to 25 cm. long, puberulous beneath; peduncles (including branches) more than 6 cm. long (Peru). 314. *P. frutescens.*

Leaves 5 to 11 cm. long (the older much longer), pilosulous beneath; peduncles (including branches) less than 6 cm. long (Colombia).....315. *P. pubera.*

Branchlets usually glabrous; under surface of leaves glabrous, or pilosulous only on the nerves and veins.

Sepals linear-lanceolate, less than 4 mm. wide; leaves subcaudate-acuminate (Colombia).....316. *P. Mutisii.*

Sepals oblong or oblong-lanceolate, at least 4 mm. wide; leaves obtuse, emarginate, or obtusely acuminate, rarely subacute.

Leaf nerves 6 or 7 to a side; branches of peduncles not more than 1 cm. long (French Guiana).....317. *P. ovata.*

Leaf nerves more than 7 to a side; branches of peduncles usually more than 1 cm. long (all Colombian except *P. Lindeniana*).

Operculum erose-lobulate or pectinate; leaves usually pilosulous on the nerves and veins beneath.

Inner corona filaments filiform; leaves 5–6-glandular on lower surface near base, the glands about 1 mm. in diameter, yellowish.....318. *P. grandis.*

Inner corona filaments subdolabriform; leaves biglandular at base of midnerve beneath, the glands about 2 mm. in diameter, black.

Leaves ovate-lanceolate, averaging more than 15 cm. long, narrowed to an obtuse apex, bright green and lustrous on both surfaces.
319. *P. putumayensis.*

Leaves obovate or obovate-oblong, averaging less than 15 cm. long, usually rounded or emarginate at apex, dark green above, glaucescent beneath.

Operculum erose-lobulate....320. *P. emarginata.*

Operculum pectinate.....321. *P. Engleriana.*

Operculum fimbriate, or filamentose nearly to base; leaves glabrous throughout.

Leaves lustrous, concolorous; peduncles (including branches) 5 to 10 cm. long.....322. *P. Schultzei.*

Leaves dull, usually glaucous beneath; peduncles (including branches) up to 4 cm. long.

Operculum filamentose nearly to base (Venezuela).
323. *P. Lindeniana.*

Operculum fimbriate only to middle.

Leaves averaging 8 to 10 cm. long, the lateral nerves arcuate-ascending.....324. *P. sphaerocarpa.*

Leaves averaging 10 to 12 cm. long, the lateral nerves straight.....325. *P. ocanensis.*

Section 4. **Leptopoda**

One species (Guianas and northern Brazil).....326. *P. leptopoda.*

Section 5. **Pseudoastrophea**

Calyx tube broadly funnel-shaped, more than 1.5 cm. long; operculum flabellate-lobulate (Amazonian Brazil).

Under side of leaves and calyx tube pubescent; corona filaments in 4 series, the outermost dilated near middle, the others filiform. 327. *P. candida.*

Under surface of leaves and calyx tube essentially glabrous; corona filaments in 2 series, the outer dilated near apex, the inner tuberculiform.....328. *P. hexagonocarpa.*

Calyx tube campanulate or cylindric-campanulate, rarely funnel-shaped, not more than 1.5 cm. long; operculum not flabellate-lobulate.

Corona filaments in more than 3 series.

Margin of leaves with a conspicuous dark band (French Guiana?). 329. *P. citrifolia.*

Margin of leaves uniform in color with the rest of the blade.

Peduncles filiform, 3 to 4 cm. long; outer corona filaments smooth at margin (British Guiana)....330. *P. deficiens.*

Peduncles stouter, not more than 2 cm. long; outer corona filaments verrucose on one side toward apex.

Flowers more than 3 cm. wide when expanded, the calyx tube nearly 1 cm. wide at throat; leaves usually puberulous beneath, at least on the midnerve, the veins not elevated above (Guianas and Amazonian Peru and Brazil).....331. *P. costata.*

Flowers not more than 3 cm. wide when expanded, the calyx tube much less than 1 cm. wide at throat; leaves glabrous, the nerves strongly elevated above (Amazonian Brazil).....332. *P. faroana.*

Corona filaments in 1 to 3 series.

Leaves pilosulous or villosulous beneath, rarely glabrous in *P. Mansii.*

Operculum cleft to base.

Calyx tube funnel-shaped, narrowed at base; outer corona filaments strongly verrucose; leaves averaging less

than 5 cm. wide, usually rounded at apex (mountains of British Guiana and adjacent Venezuela).
333. *P. sclerophylla.*

Calyx tube cylindric-campanulate, enlarged at base; outer corona filaments smooth; leaves averaging more than 5 cm. wide, usually acute (central and southern Brazil).
334. *P. Mansii.*

Operculum denticulate, or cleft not more than to middle (Brazil).

Outer corona filaments attenuate at apex; operculum cleft about to middle.....335. *P. haematostigma.*

Outer corona filaments rounded at apex; operculum merely denticulate.....336. *P. ceratocarpa.*

Leaves essentially glabrous.

Operculum borne in lower third of tube (Amazonian Brazil).
337. *P. phaeocaula.*

Operculum borne at middle of tube (southeastern Brazil, except *P. Tessmannii* and *P. venosa*).

Outer corona filaments not dilated.....338. *P. elliptica.*

Outer corona filaments conspicuously dilated above middle, subdolabriform.

Flowers pendulous, the calyx tube angular.

Fruit globose, terete; inner corona filaments not bifid.....339. *P. pentagona.*

Fruit ovoid, 6-angled; inner corona filaments deeply bifid.....340. *P. alliacea.*

Flowers erect or ascending; calyx tube terete or subterete.

Inner corona filaments dilated at apex; leaves obtuse or subacute, concolorous (Brazil).
341. *P. rhamnifolia.*

Inner corona filaments not dilated at apex.

Leaves obtuse or acute, concolorous (Peru).
342. *P. Tessmannii.*

Leaves sharply acuminate, glaucous beneath (Bolivia).....343. *P. venosa.*

Section 6. **Botryastrophea**

Flowers in short, compact fascicles, the rachis less than 3 cm. long.

Plant a shrub or a small tree, without tendrils; leaves cuneate-oblong; corona 1-ranked (British Guiana)..344. *P. Quelchii.*

Plant scandent, usually with tendrils; leaves not cuneate-oblong, rounded at base; corona 3–4-ranked.

Operculum borne near base of tube, deeply fimbriate; calyx tube 3 to 5 cm. long (Guianas).....345. *P. fuchsiiflora.*

Operculum borne near middle of tube, cleft into 5 linear segments; calyx tube 1.5 to 3 cm. long (Peru).

Calyx tube less than 2.5 cm. long; ovary pubescent; operculum cleft only in upper third.....346. *P. cauliflora.*

Calyx tube about 3 cm. long; ovary glabrous; operculum cleft nearly to base.....347. *P. skiantha.*

Flowers in elongate racemes, the rachis more than 3 cm. long, sometimes bearing a few reduced leaves.

Leaves ovate-orbicular to lance-oblong, thick-coriaceous, glaucous beneath (British Guiana and Amazonian Brazil).

348. *P. longiracemosa.*

Leaves ovate-oblong or oblong-lanceolate, coriaceous or subcoriaceous, concolorous.

Apex of leaves rounded or obtuse, often emarginate; outer corona filaments verrucose on one side (British Guiana and Venezuela).....349. *P. securiclata.*

Apex of leaves acute or caudate-acuminate; outer corona filaments smooth at margin (slightly tuberculate in *P. Rusbyi*).

Petioles not more than 1 cm. long; leaves caudate-acuminate, the tip at least 1 cm. long (Amazonian Brazil).

Outer corona filaments strongly falcate-dilated; racemes up to 5 cm. long; plant erect, the tendrils reduced to spines.....350. *P. spicata.*

Outer corona filaments filiform; racemes more than 5 cm. long; plant scandent, tendril-bearing...351. *P. Holtii.*

Petioles more than 1 cm. long; leaves acute or acuminulate, the tip rarely more than 1 cm. long.

Leaves less than twice as long as broad; calyx tube puberulent (Peru).....352. *P. pyrrhantha.*

Leaves more than twice as long as broad; calyx tube glabrous, or minutely puberulent when young.

Outer corona filaments hatchet-shaped; leaves coriaceous; petiolar glands present (Colombia and Amazonian Peru and Brazil).....353. *P. spinosa.*

Outer corona filaments linear; leaves membranous; petiolar glands wanting (Bolivia)....354. *P. Rusbyi.*

Subgenus I. **APODOGYNE**

1. **Passiflora multiflora** L. Sp. Pl. 956. 1753.

Meioperis multiflora Raf. Fl. Tellur. 4: 103. 1838.

Cieca multiflora M. Roemer, Fam. Nat. Syn. 2: 148. 1846.

Plant densely and softly pilosulous throughout; stem subangular, striate; stipules setaceous, 2 to 3 mm. long, soon deciduous; petioles up to 1 cm. long, usually bearing 2 minute, sessile glands at apex; leaves oblong or oblong-lanceolate, 3.5 to 10 cm. long, 1.5 to 4 cm. wide, unlobed or rarely slightly undulate-lobed near middle, obtuse or rarely subacute at apex, rounded at base, 1-nerved, reticulate-veined, subcoriaceous, often lustrous above; flowers in fascicles of 3 (rarely 2) to 6, 1.5 cm. wide, or less, the peduncles slender, 0.5 to 1 cm. long, articulate at middle; bracts linear-subulate, about 2 mm. long, borne near base of peduncle; calyx patelliform, strongly sulcate; sepals linear-lanceolate, 3 to 4 mm. long, 1 to 1.5 mm. wide, acutish; petals narrowly linear, 2 to 3 mm. long, less than 1 mm. wide, white; corona filaments in 2 series, the outer filiform, 2 to 3 mm. long, the inner setaceous, 1 mm. long, or less; operculum membranous, slightly plicate, less than 1 mm. high, incurved; limen annular, closely encircling the ovary; ovary globose, sessile, glabrous; fruit globose, 5 to 8 mm. in diameter, dark blue, glabrous; seeds oblong, about 3 mm. long, 2 mm. wide, transversely 6–8-grooved, the ridges rugulose.

TYPE LOCALITY: "Dominica" (Hispaniola).

ILLUSTRATIONS: L. Amoen. Acad. 1: *pl. 10, f. 7;* Cav. Diss. 10: *pl. 282.*

DISTRIBUTION: Southern Florida, Greater Antilles, and Virgin Islands; Costa Rica, where perhaps introduced.

FLORIDA: "Southern Florida," *Simpson 494* (F, N); *Garber* (N); *Rugel 168* (N).—Monroe County: Key Largo, *Moldenke 404* (N, Y). —Dade County: Elliotts Key, *Britton 357* (F, K, Y); *Small & Mosier 5751* (S, Y); *O'Neill 7586* (N). Key Largo, *Pollard, Collins & Morris 181* (BM, F, Gen, K, Minn, N). Umbrella Key, *Curtiss 167* (G), *975* (B, BM, Bo, F, G, K, Minn, N, P).

COSTA RICA: San Miguel, *Wendland 887* (Cop).

BAHAMAS: Andros Island, *Brace 305* (F), *5272* (F, Y), *6710* (F, Y).

CUBA: *De la Sagra* (B, V); *Dupuy* (Ma); *Née* (Ma); *Wright 2598* (BM, Bo, Gen, HA, N, S, V), *3568* (N).—Pinar del Río: Taco Taco, *Baker 3777* (Cal, F, HV, Mo, N); *Roig & Acuña 4520* (HV). Sierra

de Anafe, *Wilson 11405* (N, Y). Las Martinas, *Shafer 11125* (N, Y). Sierra Guane, *Shafer 10519* (N, Y). Viñales, *Ekman 16578* (B, S). —Habana: Somorrostra, *León 11457* (HS); *Roig & León 2630* (HV), *8254* (HV). Lomas de Camoa, *Ekman 13443* (B, S). Isla de Piños, *Britton, Britton & Wilson 14252* (N, Y); *León 6104* (HS, N), *15304* (F).—Matanzas: *Poeppig* in 1822 (V). Pan de Matanzas, *Ekman 16466* (B, BM, N, S).—Santa Clara: Trinidad, *Britton, Britton & Wilson 5581* (N, Y). Buenos Aires, *Jack 6858* (N). Bahía de Gallina, *Roig 7395* (HV). Zapates, *Ekman 18339* (B, S). Península de Zapata, *Roig & Cremata 2174* (F).—Camagüey: Ganado, *Shafer 923* (F, N, Y). Cayo Cuayaba, *Shafer 641* (F, N, Y).—Oriente: Santiago, *Britton, Britton & Cowell 12839* (N, Y); *Palmer 365* (F, Minn, N, Ph); *Ekman 4166* (S), *4498* (S). Banes, *Ekman 6579* (S).

HAITI: St. Raphael, *Leonard 7655* (N), *7656* (N). Ennery, *Leonard 9006* (N). Jean Rabel, *Leonard & Leonard 12922* (K, N). Mole St. Nicolas, *Leonard & Leonard 13293* (N). Gonave, *Ekman H9374* (B, N). Massif des Matheux, *Ekman H3045* (B, N). Gonave Island, *Leonard 3291* (N). Tortue Island, *Leonard & Leonard 13957* (N).

DOMINICAN REPUBLIC: *Bertero* (Gen, V); *Poiteau* (Gen); *Meyerhoff* (B); *Sieber* (V). Barahona, *Fuertes 926B* (Cop, F, S); *Ekman H7040* (B, N). Bayajibe, *Taylor 461* (F).

PUERTO RICO: Cabo Rojo, *Sintenis 687* (Bo, Gen, Minn, N, S). Aybonito, *Sintenis 2949* (J). Manatí, *Sintenis 6654* (N, V). Vega Baja, *Britton & Cowell 1426* (N, Y). Vega Alta, *Britton, Britton & Brown 6787* (N, Y). Martín Peña, *Britton & Britton 7118* (N, Y); *Stevenson 1248* (N).

VIRGIN ISLANDS: St. Thomas, *Oersted* (Cop, N).

BRITISH VIRGIN ISLANDS: Tortola, *Britton & Shafer 907* (N, Y).

In previous treatments of *Passiflora* this species has been placed in *Plectostemma* but, though bearing a superficial resemblance to *P. holosericea*, it clearly represents a wholly different group. Indeed, on the basis of sessile ovary it might perhaps be segregated as a genus. The correlation of gland-bearing petioles and reticulate seeds, characteristic of *Plectostemma*, does not obtain in *P. multiflora*, for the petioles have glands, though the seeds are transversely sulcate. It is here placed in the monotypic subgenus *Apodogyne*.

LOCAL NAMES: "Fruta del perro," "pasionaria vainilla" (Cuba); "liane tafia" (Haiti).

The specimens cited above are for the most part quite uniform. There occurs, however, a form that is glabrous throughout.

1a. **Passiflora multiflora** f. **glabra** Ekman, Arkiv Bot. 21A, No. 5: 16. 1927.

Plant glabrous throughout; otherwise as in typical *P. multiflora*.

BAHAMAS: *H. E. Robinson 242* (K). Eleuthera Island, *E. G. Britton 6472* (F, Y). New Providence, *E. G. Britton 3331* (F, Y), *6585* (F, Y). Andros Island, *Northrop & Northrop 374* (F, K, Y).

CUBA: Pinar del Río: Sierra Guacamayas, *Ekman 17979* (B, S). —Oriente: Baracoa, *Ekman 3696* (S).

HAITI: Tortue Island, *Ekman H4114* (B, S, type); *Leonard & Leonard 11307* (N), *13957* (K, N), *14000* (N).

Subgenus II. ASTEPHIA

2. **Passiflora penduliflora** Bert. in DC. Prodr. 3: 326. 1828.

Passiflora rotundifolia L. sensu Swartz, Obs. Bot. 337. 1791, not *P. rotundifolia* L.

Passiflora rotundifolia var. *Swartzii* DC. Prodr. 3: 327. 1828.

Decaloba penduliflora M. Roemer, Fam. Nat. Syn. 2: 157. 1846.

Decaloba Swartzii M. Roemer, Fam. Nat. Syn. 2: 160. 1846.

Passiflora Swartzii Mast. Trans. Linn. Soc. 27: 634. 1871; in Mart. Fl. Bras. 13, pt. 1: 556. 1872.

Plant glabrous throughout; stem rather coarse, strongly angulate, striate; stipules setaceous, 3 to 4 mm. long; petioles 0.5 to 2 cm. long, slender, glandless; leaves variable in shape, suborbicular, ovate, oblong, or triangular-obovate, 4 to 7.5 cm. long, 2.5 to 8 cm. wide, 3-lobed at apex (lobes acute or obtuse, mucronulate, the middle lobe longer, rarely shorter, than the lateral lobes), or occasionally subentire, rounded at base, 3-nerved, ocellate, subcoriaceous or membranous; peduncles 2 to 4 cm. long at anthesis, 6 to 10 cm. long and pendulous in fruit, articulate below middle; bracts subulate, 2 to 4 mm. long, subcoriaceous, deciduous; flowers up to 4 cm. wide, greenish yellow; calyx tube campanulate, slightly elongate after anthesis, green; sepals oblong-lanceolate, 1.5 to 2 cm. long, 0.4 to 0.6 cm. wide, obtuse; petals oblanceolate, subequaling sepals, 0.5 to 0.7 cm. wide, rounded at apex, short-clawed at base; corona filaments in a single series, linear-clavate, unequal, 0.5 to 1.5 mm. long, united at base to form a fleshy ring; operculum none; limen none; ovary ovoid, gla-

brous; fruit globose or ovoid, 1 to 1.5 cm. in diameter; seeds broadly ovate, transversely 8–10-sulcate, the ridges rugulose.

TYPE LOCALITY: Jamaica.

ILLUSTRATIONS: Bot. Mag. 77: *pl. 4565;* Lemaire, Jard. Fleuriste 2: *pl. 114;* Fl. des Serres I. 7: *pl. 656.*

DISTRIBUTION: Eastern Cuba and Jamaica.

CUBA: *Bertero* (B). Monte Verde, *Wright 198* (B, Bo, Brux, G, Gen, HA, P).—Santa Clara: Trinidad, *Roig 5749* (HV).—Camagüey: *Acuña 8883* (HV). La Gloria, *Shafer 70* (F, N, Y).—Oriente: Santiago, *Britton & Cowell 12845* (B, N, Y). Ensenada de Mora, *Britton, Cowell & Shafer 13058* (Y). Sierra de Nipe, 500 meters, *Ekman 6490* (S), *9073* (B). Bayate, *Ekman 2747* (S), *6253* (BM, S).

JAMAICA: *P. Browne* (Linn, type); *Swartz* (S, type of *P. rotundifolia* L. sensu Swartz); *Wiles* (Gen); *Bertero* (Gen, V). Peters Vale, Westmoreland, *Harris 9941* (BM, J, N, Y). Mandeville, *S. Brown 269* (Ph); *Britton 1068* (Y), *3246* (Y). Troy, *Harris 9414* (B, BM, F, J, Y); *Britton 611* (F, Y). Moneague, *Maxon & Killip 361* (N, P), *370* (N); *Alexander* in 1850 (B, P). Mt. Diabolo, 700 meters, *Maxon & Killip 460* (N). Newcastle, *Britton 3453* (Y). Vinegar Hill, Portland, 1,175 meters, *Maxon & Killip 831* (F, G, N, P, Y).—Cinchona, 1,600 meters, *Clute 218* (B, Minn, N); *Maxon & Killip 921* (G, N); *Britton 83* (Y).

In this remarkable species there is no vestige of either an operculum or a limen, the inside of the calyx being smooth from the single-ranked corona to the gynophore. The petals are distinctly clawed, and thus unlike any other species of *Passiflora.* Other characters, as the sculpturing of the seeds, subulate bracts and stipules, and ocellate leaves, suggest a rather close relationship to *Plectostemma,* section *Decaloba.* I am creating for it a monotypic subgenus, *Astephia.*

The specimen in the Stockholm herbarium upon which Swartz based his description of "*P. rotundifolia*" is in an excellent state of preservation, and is unmistakably *P. penduliflora.*

The species is represented in the Linnean Herbarium by a single collection, one made by P. Browne probably in Jamaica. No name is given it by Linnaeus, but Solander has written on the sheet "*Passiflora rotundifolia.*"

In Jamaica the stems are used for tying fences.

LOCAL NAMES: "Bejuco de manteca," "pasionaria vejigosa" (Cuba).

Subgenus III. TRYPHOSTEMMATOIDES

3. **Passiflora tryphostemmatoides** Harms, Bot. Jahrb. 18: Beibl. 46: 6. 1894.

Plant slender, glabrous throughout; stipules subulate, 2 mm. long; petioles up to 5 mm. long, very slender, bearing at extreme apex 2 minute, sessile glands; leaves transversely ovate or elliptic, rarely suborbicular, 1.2 to 1.8 cm. long, 1.5 to 3 cm. wide, rounded or truncate, or rarely slightly emarginate at apex, cordulate or truncate at base, 1-nerved, subcoriaceous, glaucescent beneath; peduncles solitary in the axils of the leaves, 0.5 to 1.5 cm. long, 2-flowered at apex, terminating in a slender tendril; pedicels 3 to 6 mm. long; bracts setaceous, 2 to 3 mm. long; flowers 1.5 cm. wide when fully expanded, yellowish green; sepals oblong, 5 to 7 mm. long, obtuse; petals oblong, 3 to 5 mm. long; filaments of corona in a single series, filiform, 2 to 3 mm. long, yellowish green, streaked with pink; operculum membranous, 1.5 mm. high, nonplicate, lacerate-cleft half its height; limen cupuliform; ovary subglobose; fruit subglobose or broadly ovoid, 6-angulate, up to 2.5 cm. long, 2 cm. in diameter, yellowish green, the wall brittle; seeds obovoid, very slightly flattened, 6 mm. long, 3 mm. wide, finely reticulate, axis slightly curved.

TYPE LOCALITY: Above Juza, eastern slopes of the Central Andes of Popayán, Colombia, altitude 1,700 meters.

DISTRIBUTION: Central and Western Cordilleras of Colombia, 1,700 to 2,600 meters altitude.

COLOMBIA: *Mutis 2856* (Ma, N).—El Chocó; Quibdó, *Angel* (*Daniel 536;* N).—Huila: Juza, *Lehmann 5662* (B, type, K).—Caldas: Pereira, *Killip 10164* (N).—El Valle: La Cumbre, *Pennell 5154* (G, Gen, N, Ph, Y); *Killip 5561* (G, K, N, Ph, Y). Miraflores, above Palmira, *Killip 6154* (G, N). Cuesta de Tocotá, west of Cali, *Pittier 738* (N).—El Cauca: Andes west of Popayán, *Lehmann 5915* (B, K). San Antonio, *Pennell & Killip 7339* (N, Y), *8032* (N). La Gallera, Micay Valley, *Killip 7962* (N). El Tambo, *von Sneidern 985* (S).

This and *P. gracillima* are well marked species, occupying a position by themselves. The general appearance of the flowers suggests *Plectostemma*, but the operculum is not plicate and is lacerate-cleft about half its length.

As indicated by specimens cited, *P. tryphostemmatoides* is widely distributed in western Colombia. In certain places it is abundant.

LOCAL NAME: "Golondrina" (El Chocó).

4. **Passiflora gracillima** Killip, Journ. Wash. Acad. Sci. 14: 112. 1924. Figure 2, *b*.

Plant glabrous throughout; stem slender, subterete below, angulate above; stipules setaceous, 2.5 to 3 mm. long; petioles up to 3 mm. long, bearing at apex 2 minute, sessile glands; leaves oblong, ovate-oblong, or suborbicular, 2.5 to 5 cm. long, 2 to 4 cm. wide, unlobed, rounded or occasionally subemarginate at apex, truncate or cordulate at base, entire, penninerved (5 to 7 pairs of secondary nerves), reticulate-veined, subcoriaceous, dark green and lustrous above, green or subglaucous beneath; peduncles solitary in the axils of the leaves, 2 to 4 cm. long, very slender, bearing at apex 2 pediceled flowers, and terminating in a slender tendril; flowers 1.5 to 2 cm. wide, greenish yellow; sepals linear-lanceolate, 1 to 1.5 cm. long, 3 to 5 mm. wide, obtuse; petals 7 to 8 mm. long, 2 mm. wide; corona filaments in 2 series, the outer filiform, 4 to 5 mm. long, the inner capillary, 1.5 mm. long; operculum membranous, nonplicate, lacerate nearly to middle; limen cupuliform, 1 mm. high; ovary ovoid or ovoid-fusiform, obscurely 6-angled, 6-ribbed; fruit ellipsoid, 3 to 5 cm. long, 1.5 to 2 cm. thick, 6-angled and 6-ribbed, stipitate; seeds ovate, 3 mm. long, 1.5 mm. wide, reticulate at center, the margin thickened, faintly transverse-striate.

TYPE LOCALITY: Salento, Caldas, Colombia, 2,400 meters altitude.

DISTRIBUTION: Western Panama, Central and Western Cordilleras of Colombia, and central Ecuador.

PANAMA: Chiriquí: *Hart 104* (K).

COLOMBIA: Caldas: Salento, *Pennell 9224* (G, N), *9317* (N, Y), *9393* (A, G, N, type, Y).—El Chocó: Quibdó, *Archer 1902* (N), *2034* (N).—Nariño: Between Meneses and Pasto, *André 2882* (K).

ECUADOR: Chimborazo: Riobamba, *Rimbach 222* (F).

Closely related to the preceding, this species differs in having leaves longer than broad and in its longer peduncles. Further examination of the type material indicates that the original description of the operculum as plicate was incorrect; it appears to be nonplicate, essentially like that of *P. tryphostemmatoides*.

LOCAL NAME: "Granadilla."

Subgenus IV. DEIDAMIOIDES

5. **Passiflora deidamioides** Harms, Repert. Sp. Nov. 19: 57. 1923.

Plant glabrous throughout; stem subterete; stipules?; petioles 1.5 to 5 cm. long, bearing 2 to 4 sessile glands; leaves trifoliolate,

the leaflets oblong or obovate-oblong, 5 to 8 cm. long, 2 to 5 cm. wide, obtuse at apex, obtuse at base or narrowed to a short (5 to 10 mm.) petiolule, entire, 1-nerved, membranous or subcoriaceous; peduncles solitary, 4 to 6 cm. long, slender, bearing 2 slender-pediceled flowers (pedicels 2 to 3 cm. long), and terminating in a long tendril; bracts setaceous, 2 to 3 mm. long; flowers 5 to 6 cm. wide; calyx tube broadly campanulate, 4 to 5 mm. long, 12 to 13 mm. wide at throat; sepals lanceolate-oblong, obtuse; petals nearly as long as and narrower than sepals; corona in several series, the outer 1.5 to 2 cm. long, the succeeding gradually shorter, the innermost filiform, 3 to 5 mm. long; operculum membranous, 2 to 3 mm. high, plicate, lobulate; limen cupuliform, adnate to base of gynophore; ovary ovoid, glabrous.

TYPE LOCALITY: Alto da Serra, São Paulo, Brazil, the type collected by A. Gehrt (No. 4592; in herb. Hort. Oswaldo Cruz).

DISTRIBUTION: Known only from the states of Rio de Janeiro and São Paulo, southeastern Brazil.

BRAZIL: São Paulo: *Puiggari 150* (P).—Rio de Janeiro: Therezopolis, *Brade 9850* (B); *De Moura 150* (Brux).

In the second edition of *Die Natürlichen Pflanzenfamilien* Harms created for this rare species a separate section of *Plectostemma*, to which he gave the name *Deidamioides*. In the present treatment I am raising the section to subgeneric rank, placing it next to *Plectostemma*.

Subgenus V. **PLECTOSTEMMA**

Section 1. **Cieca**

6. **Passiflora coriacea** Juss. Ann. Mus. Hist. Nat. 6: 109. *pl. 39, f. 2.* 1805.

Passiflora difformis HBK. Nov. Gen. & Sp. 2: 136. 1817.

Passiflora clypeata J. E. Sm. in Rees, Cycl. 26: *Passiflora* No. 20. 1819.

Monactineirma coriacea Bory, Ann. Sci. Gén. Phys. Brux. 2: 138. 1819.

Cieca difformis M. Roemer, Fam. Nat. Syn. 2: 140. 1846.

Cieca coriacea M. Roemer, Fam. Nat. Syn. 2: 148. 1846.

Passiflora sexocellata Schlecht. Linnaea 27: 521. 1854.

Passiflora obtusifolia Sessé & Moc. Pl. Nov. Hisp. 156. 1887.

Passiflora cheiroptera Cortés, Fl. Colomb. ed. 2, plate between pp. 112 and 113. 1919, plate only.

Stem angulate, glabrate below, densely puberulent above; stipules narrowly linear, 5 mm. long, acute; petioles glabrate or puberulent, 2 to 4 cm. long, bearing usually at or below middle, rarely near apex, 2 sessile or subsessile glands (sometimes 4-glandular), the glands about 1 mm. in diameter; leaves 3 to 7 cm. long (midnerve), 7 to 25 cm. wide, normally 2 (or obscurely 3)-lobed (lateral lobes divergent, acute or rarely obtuse), peltate, 5-nerved, reticulate-veined, ocellate beneath, coriaceous, cartilaginous at margin, glabrous; upper inflorescence a terminal raceme 4 to 6 cm. long, destitute of leaves, with stipules and bractlike, biglandular appendages (the petioles of abortive leaves) at the base of the pedicels, the lower flowers solitary or usually in pairs in the axils of the leaves; flowers 2.5 to 3.5 cm. wide, yellowish green; sepals oblong-lanceolate, 1 to 1.5 cm. long, 4 to 5 mm. wide, obtuse; petals none; corona filaments in 2 series, those of the outer filiform, 7 to 8 mm. long, the inner linear, 2 mm. long, 0.6 mm. wide; operculum membranous, plicate, the margin slightly incurved; limen annular, thick, barely 1 mm. high, dark brown; ovary ovoid, glabrous; fruit globose, 1 to 2 cm. in diameter, glabrous; seeds obcordate to obovate, about 4 mm. long, 2 mm. wide, curved, conspicuously beaked, each face coarsely reticulate.

TYPE LOCALITY: Santa Fé, near Honda, Department of Tolima, Colombia.

ILLUSTRATIONS: Hernández, Rer. Medic. Nov. Hisp. Thes. 435; Ann. Mus. Hist. Nat. 6: *pl. 39, f. 2;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 22, f. 2;* Engl. & Prantl, Pflanzenfam. ed. 2. 21: 499. *f. 230A, B;* Mutis, Icon. Pl. Ined. 26: *pl. 32;* Cortés, Fl. Colomb. ed. 2, plate between pp. 112 and 113.

DISTRIBUTION: Mexico to northern Peru and northern Bolivia, up to 2,000 meters altitude; known also from British Guiana on the basis of a single collection.

MEXICO: *Liebmann 4080* (Cop), *4081* (Cop), *4084* (Cop), *4085* (Cop), *4156* (*Cop*); *Sessé & Mociño 4457* (Ma), *4458* (Ma), *4462* (Ma, type of *P. obtusifolia*).—Sinaloa: Mazatlán, *Brandegee* in 1890 (Cal).—San Luis Potosí: Tamasopo, *Pennell 17985* (N). Tamazunchale, *Lundell & Lundell 7149* (N).—Nayarit: Tres Marías Islands, *Mason 1772* (CAS, N).—Jalisco: San Sebastián, *Mexia 1448* (N).—Veracruz: *Hahn 106* (P). Qualtepec, *Liebmann 4083* (Cop, N). Misantla, *Liebmann 4082* (Cop); *Purpus 5580* (B, BM, Cal, F, G, Mo, N, Y). Tantoyuca, *Ervendberg 211* (G).—Mexico: Rincón, *Hinton 3030* (K, N), *4655* (K, N).—Colima: Manzanillo, *Ferris 6208*

(N).—Tabasco: San Juan Bautista, *Rovirosa 212* (K, N, Ph).—Yucatán: Chichankanab, *Gaumer 23714* (F). Yucatán, *Gaumer 24415* (Gen, Mo). Tuxpeña, *Lundell 1210* (Mich, N). Champotón, *Steere 1888* (N).

GUATEMALA: *Tejada 248* (N). Secanquím, *Goll 27* (N). Chocón Plantation, *Watson* (G).—Petén: Uaxactún, *Bartlett 12270* (N), *12755* (Mich). La Libertad, *Lundell 2349* (Mich), *2439* (Mich).—Alta Verapaz: Cubilquitz, *Türckheim 8215* (B, G, N). Chama, *H. Johnson 273* (N).—Izabal: Puerto Barrios, *Standley 24959* (N). Quiriguá, *Standley 24014* (N), *24607* (N). Cristina, *Blake 7595* (N). San Felipe, *Deam 10* (G, Mich).—Suchitepéquez: Las Animas, *Shannon 274* (N).

HONDURAS: Santa Bárbara: San Pedro Sula, *Thieme 5242* (N).—Atlántida: Tela, *Standley 52783* (N), *54712* (N), *56658* (N) Puerto Sierra, *Wilson 256* (N, Y), *533* (Y).

BRITISH HONDURAS: Honey Camp, *Lundell 636* (N). Belize River, *Lundell 3836* (N), *3839* (Mich), *3841* (Mich), *3842* (Mich). Corozal, *Gentle 215* (N), *255* (N), *514* (N), *527* (Mich). El Cayo, *Bartlett 12011* (N); *Chanek 4* (N). Alfonsoville, *Gentle 821* (N). Kendal, *Schipp 803* (Gen, Mich).

SALVADOR: Izalco, *Pittier 1949* (N).—Ahuachapán: *Padilla 163* (N).—San Salvador: San Salvador, *Standley 20602* (N), *22723* (N); *Calderón 829* (N).—San Vicente, *Standley 21306* (N).

COSTA RICA: *Pittier 6584* (Brux); *Tonduz 14830* (K). Las Vueltas, Tucurrique, *Tonduz 12808* (B, N, P). Limón, *Pittier 3630* (BM, N). Hacienda de Zent, *United Fruit Company 344* (N). Golfo Dulce, *Brenes 105* (V).

PANAMA: Canal Zone: *Gaillard* in 1909 (N). Barbacoas, *Hayes* in 1862 (BM). Las Cascadas, *Standley 29594* (N). Darién, *Standley 31617* (N). Empire, *Piper 5479* (N). Alhajuela, *Pittier 3456* (N). Barro Colorado Island, *Shattuck 57* (N).

BRITISH GUIANA: Essequibo, *Lejos 43* (B).

COLOMBIA: *Mutis* (Linn, type of *P. clypeata*); *Lehmann B. T. 1162* (Y).—Magdalena: Cincinnati, *Giacometto 4* (Ph). Santa Marta, *Purdie* (K, erroneously labeled "Jamaica").—Atlántico: Campo Alegre, *H. H. Smith 1955* (Y). Onaca, *H. H. Smith 2781* (Y). Victoria, *Viereck* in 1922 (N).—Bolívar: Turbaco, *Killip & Smith 14415* (G, N, Y). Cartagena, *Heriberto 392* (N).—Santander: Nariño, *Killip & Smith 14970* (G, N, Y). Bucaramanga, *Killip & Smith*

16343 (A, G, N, Y), *19062* (G, N, Y), *21156* (N). Tona, *Inst. de La Salle, Bogotá* (Bog).—Cundinamarca: Fusagasugá, *Goudot* in 1844 (P). La Mesa, *Triana 2933* (BM, Gen, HNC, P). Nilo, *Pérez 510* (N).—Boyacá: *Inst. de La Salle, Bogotá* (Bog).—Tolima: Honda, *Humboldt & Bonpland* (P, type). El Moral, Quindío Trail, *Humboldt & Bonpland* (type of *P. difformis;* B, P). Río Cuello, *Hazen 9652* (G, N, Y); *Killip 9726* (G, N). Ibagué, *Cuatrecasas 3245* (Ma). —Caldas: Manizales, *Pennell 10190* (A, G, N).—El Valle: La Manuelita, *Pennell & Killip 6180* (G, N). Zarzal, *Pennell, Killip & Hazen 8500* (N), *8581* (N). Puerto Caldas, *Killip & Hazen 11023* (N). Cisneros, *Killip 11442* (G, N). Río Dagua, *Lehmann 2777* (BM, Bo). La Paila, *Holton 703* (Y).

ECUADOR: Coastal plain, *Rimbach 255* (N).

PERU: *Haenke 1882* (Pr).—San Martín: Tarapoto, *Ule 6461* (B, Gen, Go); *Spruce 4532* (V). Chasuta, *Klug 3963* (N). Alto Río Huallaga, *L. Williams 5517* (N), *5751* (N).—Junín: San Ramón, *Killip & Smith 24907* (F, N, Y).

BOLIVIA: Beni: San Buenaventura, *Mulford Biol. Expl. 1196* (N, Y).

This well marked, widely distributed species was figured in 1651 by Hernández and described under the name *tzinacanatlapatli.* In typical specimens the two lobes are divaricate at an angle of about 90 degrees from the midrib, the upper margin being nearly a straight line; hence the leaf is transversely oblong-elliptic. Often a middle lobe is present, varying from a mere point to a short, broadly truncate lobe or a well defined, lance-oblong lobe (Salvador, *Standley 20188; Padilla 163*). These latter plants strongly resemble forms of *P. suberosa,* but may be distinguished by the larger, sessile or subsessile petiolar glands and the peltate leaves. Otherwise the material cited above is remarkably uniform. *Lehmann 2777,* from Colombia, has ovate stipules, and is strongly suggestive of *P. trinifolia.* The type of *P. obtusifolia* is an atypical plant, with thinner leaves, the middle lobe short and broadly truncate and the lateral lobes obtuse.

LOCAL NAMES: "Hoja de murciélago" (Mexico, Guatemala); "murciélago" (Mexico, Salvador); "media luna," "granadilla del monte" (Guatemala); "ala de murciélago" (Salvador); "bejuco de blatijito" (Colombia); "uchuanquirisi" (Inca).

7. **Passiflora clypeophylla** Mast. Bot. Gaz. 16: 7. 1891.

Plant glabrous throughout; stem flattened, grooved; stipules narrowly linear, 5 mm. long, acute, coriaceous; petioles 2 to 3 cm.

long, bearing at middle 2 sessile glands about 1 mm. in diameter; leaves subrotund or obscurely 3-lobed, 7 to 8 cm. long, 8 to 10 cm. wide, peltate, 5–7-nerved, reticulate-veined, entire or emarginate at tips of nerves, membranous, slightly cartilaginous at margin, dark green above, glaucous beneath; peduncles solitary or in pairs, 1.5 to 2.5 cm. long, slender, articulate at middle; bracts early deciduous; flowers 1 to 1.5 cm. wide; sepals oblong, 7 mm. long, 3 mm. wide, obtuse, yellowish green; petals none; corona filaments in 2 series, the outer filiform, 6 mm. long, purple at base, yellow toward apex, reflexed, the inner linear-clavate, 2 mm. long, erect; operculum membranous, plicate, the apex incurved, denticulate; limen annular; ovary globose.

TYPE LOCALITY: Barranca del Rubelcruz, Alta Verapaz, northern Guatemala.

DISTRIBUTION: Known only from the type locality, in northern Guatemala.

GUATEMALA: Alta Verapaz: Barranca del Rubelcruz, 770 meters, *J. D. Smith 1625* (N, type).

This species, though rather closely related to *P. coriacea*, is readily distinguished by its thinner, nearly orbicular leaves and its more slender peduncles. The single specimen examined shows no evidence of the terminal raceme of flowers frequent in *P. coriacea*.

8. **Passiflora tenuiloba** Engelm. in Gray, Bost. Journ. Nat. Hist. 6: 192. 1850.

Passiflora Bigelovii Small, Bull. N. Y. Bot. Gard. 1: 283. 1899.

Stem slender, subterete, glabrous or slightly pilosulous; stipules linear-setaceous, about 3 mm. long; petioles up to 8 mm. long, bearing 2 sessile, saucer-shaped glands at the extreme apex of the petiole or occasionally one on each of the lowermost lateral nerves close to their base, the glands 1 to 1.2 mm. in diameter, sessile; leaves deeply 3-lobed (lobes linear or cuneate, oblong, often aristulate, the lateral up to 8 cm. long, 0.3 to 2 cm. wide, once or twice lobed, the middle lobe from one-third to two-thirds as long as the lateral lobes, entire to 3-lobed), subcordate at base, 3–5-nerved, strongly reticulate-veined, few-ocellate, coriaceous, sparsely or densely pilosulous above, glabrous beneath; peduncles solitary or in pairs, 3 to 7 mm. long, very slender, articulate at middle, finely pilosulous, at length glabrous; bracts apparently none (at least early deciduous); flowers about 2 cm. wide, greenish; sepals linear-lanceolate, 6 to 8 mm. long, 2 mm. wide, obtuse, hyaline-margined;

petals none; corona filaments in 2 series, those of the outer narrowly linear, 3 to 4 mm. long, the inner ones filiform, 2 mm. long; operculum membranous, closely plicate, minutely denticulate at margin; limen annular, borne within 1 mm. of operculum; ovary globose, glabrous; fruit globose, 8 to 10 mm. in diameter; seeds ovate-oblong, 3 to 4 mm. long, 2 to 2.5 mm. wide, acute at ends, reticulate at middle of each face, 5-sulcate at margin, the axis slightly curved.

TYPE LOCALITY: Western Texas (type collected by Lindheimer).

DISTRIBUTION: Central and southern Texas to southern New Mexico and northern Tamaulipas, Mexico.

TEXAS: Manon Spring, *Havard* in 1883 (N). Pecos, *Bigelow* (*Mexican Boundary Survey 393d;* G, N, Y). Camp Green, *Bigelow* (*Mexican Boundary Survey 393c;* B, Y, type of *P. Bigelovii*). Dallas Co., *Reverchon* in 1877 (Y). Sterling Co., *Tharp 3615* (N). Travis Co., *Tharp 2850* (N). Hays Co., *Tharp 1538* (N). Kerr Co., *Bray 164* (N). Crockett Co., *Reverchon 328* (F). Terrell Co., *Wooton* in 1911 (N). Brewster Co., *Tharp 3616* (N). Wilson Co., *Palmer* in 1879 (G). Uvalde Co., *E. J. Palmer 10192* (N). Duval Co., *Croft 64* (Y). Webb Co., *Schott* (F). Starr Co., *Nealley 161* (F), *204* (Penn).

NEW MEXICO: *Wright 171* (K), *216* (BM, G, K, N), *1083* (B, Bo, G, N, P). Dona Ana Co., *Bigelow* (*Mexican Boundary Survey 393;* N).

MEXICO: Tamaulipas: El Mulato, *Bartlett 11016* (N).

In *P. tenuiloba* the glands are borne either just below the subcordate base of the blade—hence, on the petiole—or just above—hence on the lowermost nerves, a point which suggests that this species is a connecting link between the two principal sections of *Plectostemma*. Further evidence of its intermediate position lies in the sculpturing of the seeds. The faces are reticulate at the center, transversely grooved toward the edges, thus exhibiting the principal distinguishing characters of the two sections. Clearly, however, the species is more closely related to *P. coriacea* and *P. suberosa* than to any species of *Decaloba*.

In the form described as *P. Bigelovii* the middle leaf lobe is proportionately longer.

9. **Passiflora suberosa** L. Sp. Pl. 958. 1753.

Passiflora pallida L. Sp. Pl. 955. 1753.

Passiflora hirsuta L. Sp. Pl. 958. 1753.

Passiflora minima L. Sp. Pl. 959. 1753.

Passiflora nigra Jacq. Obs. Bot. 2: 27. *pl. 46, f. 3.* 1767.

Passiflora glabra Mill. Gard. Dict. ed. 8. *Passiflora* No. 4. 1768.

(?)*Passiflora olivaeformis* Mill. Gard. Dict. ed. 8. *Passiflora* No. 6. 1768.

Passiflora peltata Cav. Diss. 10: 447. *pl. 274.* 1780.

Cieca viridis Medic. Malvenfam. 97. 1787.

Cieca nigra Medic. Malvenfam. 97. 1787.

Passiflora angustifolia Swartz, Prodr. 97. 1788.

Passiflora parviflora Swartz, Prodr. 97. 1788.

Passiflora heterophylla Dryand. in Ait. Hort. Kew. 3: 309. 1789, not *P. heterophylla* Lam.

Passiflora hederaefolia Lam. Encycl. 3: 38. 1789.

Passiflora longifolia Lam. Encycl. 3: 40. 1789.

Passiflora hederacea Cav. Diss. 10: 448. 1790.

Granadilla suberosa Gaertn. f. Fruct. & Sem. 2: 480. 1791.

Cieca heterophylla Moench, Meth. Pl. Suppl. 101. 1802.

Cieca suberosa Moench, Meth. Pl. Suppl. 102. 1802.

Cieca minima Moench, Meth. Pl. Suppl. 102. 1802.

Passiflora litoralis HBK. Nov. Gen. & Sp. 2: 138. 1817.

Baldwinia peltata Raf. Amer. Monthly Mag. 267. 1817.

Monactineirma angustifolia Bory, Ann. Gén. Sci. Phys. Brux. 2: 138. 1819.

Monactineirma minima Bory, Ann. Gén. Sci. Phys. Brux. 2: 138. 1819.

Monactineirma suberosa Bory, Ann. Gén. Sci. Phys. Brux. 2: 138. 1819.

Monactineirma peltata Bory, Ann. Gén. Sci. Phys. Brux. 2: 138. 1819.

Monactineirma hederacea Bory, Ann. Gén. Sci. Phys. Brux. 2: 138. 1819.

Passiflora oliviformis Vell. Fl. Flum. 9: *pl. 83.* 1827.

Passiflora globosa Vell. Fl. Flum. 9: *pl. 85.* 1827.

Passiflora Kohautiana Presl, Fl. Bemerk. 72. 1836.

Passiflora villosa MacFadyen, Fl. Jamaica 2: 151. 1837, not *P. villosa* Vell.

Meioperis peltata Raf. Fl. Tellur. 4: 103. 1838.

Meioperis suberosa Raf. Fl. Tellur. 4: 103. 1838.

Meioperis minima Raf. Fl. Tellur. 4: 103. 1838.

Meioperis pallida Raf. Fl. Tellur. 4: 103. 1838.

Meioperis angustifolia Raf. Fl. Tellur. 4: 103. 1838.

Meioperis hederacea Raf. Fl. Tellur. 4: 103. 1838.

Passiflora Warei Nutt. in Sillim. Journ. ex Torr. & Gray, Fl. N. Amer. 1: 539. 1838.

Passiflora limbata Tenore, Ind. Sem. Hort. Neap. 12. 1839; Ann. Sci. Nat. II. 13: 380. 1840.

Passiflora flexuosa Gardn. Lond. Journ. Bot. 1: 174. 1842.

Passiflora pseudo-suberosa Fisch. Ind. Sem. Hort. Bot. Petropol. 9: 82, ex Walp. Rep. 2: 934. 1843.

Cieca peltata M. Roemer, Fam. Nat. Syn. 2: 141. 1846.

Cieca hederacea M. Roemer, Fam. Nat. Syn. 2: 141. 1846.

Cieca pallida M. Roemer, Fam. Nat. Syn. 2: 142. 1846.

Cieca angustifolia M. Roemer, Fam. Nat. Syn. 2: 143. 1846.

Cieca olivaeformis M. Roemer, Fam. Nat. Syn. 2: 144. 1846.

Cieca globosa M. Roemer, Fam. Nat. Syn. 2: 144. 1846.

Cieca littoralis M. Roemer, Fam. Nat. Syn. 2: 145. 1846.

Cieca pseudo-suberosa M. Roemer, Fam. Nat. Syn. 2: 146. 1846.

Cieca Warei M. Roemer, Fam. Nat. Syn. 2: 146. 1846.

Cieca minima M. Roemer, Fam. Nat. Syn. 2: 147. 1846.

Cieca flexuosa M. Roemer, Fam. Nat. Syn. 2: 148. 1846.

Cieca limbata M. Roemer, Fam. Nat. Syn. 2: 148. 1846.

Passiflora hirsuta var. *parvifolia* M. Roemer, Fam. Nat. Syn. 2: 174. 1846.

Passiflora lineariloba Hook. f. Trans. Linn. Soc. 20: 222. 1851.

Passiflora tridactylites Hook. f. Trans. Linn. Soc. 20: 222. 1851.

Passiflora puberula Hook. f. Trans. Linn. Soc. 20: 223. 1851.

Passiflora suberosa var. *divaricata* Griseb. Bonplandia 6: 7. 1858.

Passiflora suberosa var. *minima* Mast. Trans. Linn. Soc. 27: 630. 1871; in Mart. Fl. Bras. 13, pt. 1: 579. 1872.

Passiflora suberosa var. *hirsuta* Mast. Trans. Linn. Soc. 27: 630. 1871; in Mart. Fl. Bras. 13, pt. 1: 579. 1872.

Passiflora suberosa var. *hirsuta* subvar. *argentea* Mast. Trans. Linn. Soc. 27: 630. 1871; in Mart. Fl. Bras. 13, pt. 1: 579. 1872.

Passiflora suberosa var. *angustifolia* Mast. Trans. Linn. Soc. 27: 630. 1871; in Mart. Fl. Bras. 13, pt. 1: 579. 1872.

Passiflora suberosa var. *pallida* Mast. Trans. Linn. Soc. 27: 630. 1871; in Mart. Fl. Bras. 13, pt. 1: 579. 1872.

Passiflora suberosa var. *hederacea* Mast. Trans. Linn. Soc. 27: 630. 1871; in Mart. Fl. Bras. 13, pt. 1: 579. 1872.

Passiflora suberosa var. *lineariloba* Mast. in Mart. Fl. Bras. 13, pt. 1: 579. 1872.

Passiflora suberosa var. *longiloba* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 157. 1873.

Passiflora suberosa var. *longipes* Wats. Proc. Amer. Acad. 25: 149. 1890.

Passiflora calliaquatica Krause, Beih. Bot. Centralbl. 32, pt. 2: 340. 1914.

Plant glabrous to densely pubescent, the lower portion of the stem corky; stipules linear-subulate, 6 to 8 mm. long; petioles 0.5 to 4 cm. long, biglandular, the glands usually less than 0.5 mm. in diameter and distinctly stipitate, rarely larger and subsessile, borne above middle of petiole; leaves highly variable in outline, entire to deeply 3-lobed (lobes narrowly linear to broadly ovate, suberect or widely divergent, acute or obtuse), rounded or occasionally peltate at base, membranous or subcoriaceous, sometimes ocellate beneath; flowers 0.8 to 3 cm. wide, solitary or in pairs in the axils of the leaves, or occasionally in leafy, axillary racemes; bracts minute, setaceous, soon deciduous; sepals ovate-lanceolate, subobtuse, greenish yellow; petals none; corona filaments in 2 series, filiform, the outer recurved, white, yellow at apex, purple below, those of the inner series capitellate; operculum membranous, plicate, minutely fimbrillate, white, the margin incurved; limen annular; ovary subglobose or ovoid, glabrous; fruit globose or ovoid, dark purple or black, glaucous when young, 6 to 15 mm. in diameter; seeds flattened, slightly curved, abruptly acuminate at apex, tapering at base, 3 to 4 mm. long, 2 mm. wide, coarsely reticulate.

TYPE LOCALITY: "Dominica," probably Hispaniola.

ILLUSTRATIONS: Plum. Desc. Pl. Amer. *pl. 84, 85, 88, 89;* Pluk. Alm. *pl. 210, f. 3;* Amoen. Acad. 1: *pl. 10, f. 2, f. 14, f. 16, f. 18;* Jacq. Obs. Bot. 2: *pl. 46, f. 3;* Cav. Diss. 10: *pl. 265, 266, 270;* Trans. Linn. Soc. 2: *pl. 5;* Jacq. Pl. Hort. Schönbr. 2: *pl. 181;* Jacq. Hort. Vind. 1: *pl. 20, 163;* Bot. Reg. 2: *pl. 144;* 3: *pl. 188;* 8: *pl. 660;* Smith, Exot. Bot. 1: *pl. 28;* Illus. Ind. Bot. 2: *pl. 108;* Gaertn. f. Fruct. & Sem. 2: *pl. 177, f. 1;* Bot. Mag. 45: *pl. 1983;* Vell. Fl. Flum. 9: *pl. 83, 85;* Britton, Fl. Berm. 251; Mutis, Icon. Pl. Ined. 26: *pl. 31.*

DISTRIBUTION: Common throughout tropical America, except in the Guianas, where it is unknown, or at least rare. Introduced in Old World tropics. In the following list of exsiccatae specimens without collectors' numbers are not included, and hundreds of specimens in European herbaria are omitted.

FLORIDA (Peninsular Florida and the Keys): *Nuttall* (BM, type of *P. Warei*); *Baldwin 45* (Penn); *E. G. Britton 407* (F, Y), *463* (F, Y); *N. L. Britton 158* (F); *Curtiss 973* (F, N), *974* (Minn, N), *5641* (Bo, Cal, Minn, N); *Cutter, Small & Carter 731* (Ph); *Eaton 407* (F); *Fredholm 5608* (N); *J. A. Harris C17410* (Minn); *Hitchcock 105* (F, Minn, N); *Killip 31667* (N); *Lansing 2177* (F), *2390* (F); *Moldenke 323* (Y), *340* (N, Y), *516* (N, Y), *517* (Y), *526* (N, Y), *550a* (Y); *Mosier 268* (N); *Pollard, Collins & Morris 158* (F, Minn, N); *Rugel 255* (Bo), *256* (Bo), *257* (Bo); *Safford & Mosier 32* (N), *227* (N), *298* (N), *299* (N); *Simpson 260* (F, N); *Small et al. 5733* (S, Y), *5787* (S, Y), *5923* (S, Y), *6586* (S, Y); *Standley 18987* (N); *Tracy 7518* (F, N), *7655* (F, Minn, N), *9168* (F, Minn, N, Penn); *Weber 225* (F).

TEXAS: Brownsville, *Rose 18110* (N); *Rose & Russell 24283* (N); *Runyon 512* (N).

MEXICO: Chihuahua: *Gentry 2910* (F).—Durango: *Rose 3504* (N).—San Luis Potosí: *Pringle 3520* (G); *Purpus 5048* (Cal), *5049* (Cal).—Nayarit: *Ferris 5589* (N, S).—Jalisco: *Reko 4574* (N); *Rose 2946* (G, N); *Rose & Hough 4748* (N); *Rose & Painter 7395* (N); Guadalajara, *Pringle 2966* (G, type of *P. suberosa* var. *longipes*).—Hidalgo: *Coulter 58* (G), *59* (G).—Veracruz: *Galeotti 3657* (Brux), *3659* (Brux), *3661* (Brux, Gen, P), *3663* (Brux, Gen, P); *Liebmann 4124–4133, inclusive* (all Cop); *Linden 751* (Bo, Gen); *Müller 217* (Y); *Purpus 2067* (Cal, F, G, Mo, N, Y), *6234* (Cal), *7128* (Cal), *15740* (Mich); *C. L. Smith 1388* (G).—Puebla: *Purpus 1272* (B, Cal, Gen, Mo, P), *3543* (Cal, F, G, N, Y), *3544* (B, Cal, F, G, N, Y), *3545* (Cal, Mo), *3547* (Cal), *4072* (Cal), *4073* (Cal); *Rose & Hay 5838* (N); *Rose, Painter & Rose 9957* (N).—Mexico: *Hinton 4519* (K, N), *4700* (K).—Guerrero: *Lyonnet 303* (N); *Palmer 409b* (N).—Oaxaca: *Conzatti 2183* (F, G), *4419½* (N).—Yucatán: *Gaumer 1082* (F), *1304* (F), *2168* (F), *2169* (F), *23606* (F, N), *23669* (F, N), *23692* (F), *23971* (F, Gen, Mo, N), *24417* (Gen); *Schott 898* (F).

GUATEMALA: *Deam 6193* (N); *Lehmann 2512* (N); *Rodríguez 1481* (P), *2323* (P).—Petén: *Lundell 3844* (Mich).—Jalapa: *Heyde & Lux 3777* (G, N).—Guatemala: *Rodríguez 1405* (P).

BRITISH HONDURAS: *Gentle 23* (N), *42* (Mich).

SALVADOR: *Standley 20188* (N).

COSTA RICA: *Brenes 6158*, in part (F), *13675* (F); *Standley 33063* (N), *41490* (N); *Tonduz 10903* (N); *Torres 80* (N).

PANAMA: *Lehmann 1849* (Bo).—Colón: *Pittier 4402* (N).—Panama: *Killip 12039* (N); *Standley 25357* (N), *30733* (N).

WEST INDIES: 2 sheets of uncertain origin (Linn, type of *P. minima*).

BERMUDA: *Britton & Brown 23* (Cop, F, N, Penn, Ph, Y); *S. Brown 718* (N, Ph); *F. S. Collins 235* (F, N); *Millspaugh 44* (F).

BAHAMAS: *Brace 198* (F), *1518* (F), *1955* (F), *4110* (F), *4414* (F, N, Y), *4774* (F, N, Y); *E. G. Britton 3322* (F, Y), *6415* (F, Y); *Britton & Millspaugh 2189* (F, N, Y), *2463* (F), *6174* (F); *Bryant 4* (G); *Eggers 4406* (Cop); *Millspaugh 2213* (F), *2237* (F), *2318* (F), *2351* (F), *9073* (F); *Nash & Taylor 883* (F), *1097* (F), *3779* (N, Y); *Northrop 216* (F), *242* (Bo, F), *389* (F); *Small & Carter 8815* (F), *8822* (F); *Wight 156* (F); *Wilson 8262* (F).

CUBA: *Combs 50* (F, G), *304* (G); *De la Sagra 1369* (N, P); *Earle & Wilson 1575* (HV), *2409* (HV); *Eggers 4873* (J, N); *Liebmann 59* (Cop), *74* (Cop); *Millspaugh 1453* (G); *Sauvalle 8* (F); *Shafer 1013, 3597, 4857* (all F); *Van Hermann 331, 781, 863, 914* (all F); *Wilson 1099* (HV), *1308* (HV).—Pinar del Río: *Baker & Abarca 3722* (HV); *León 13197* (HS); *Palmer & Riley 194* (N); *Shafer 10474, 10564, 11677* (all N, Y); *Van Hermann 3224* (HV).—Habana: *Baker 1952, 3379, 4129, 4155, 4236, 5318* (all HV); *Curtiss 552* (Cop, N, Ph); *Ekman 822* (S), *950* (S), *12349* (B, S); *Killip 13523* (N), *13828* (N); *León 2451* (HS), *6363* (HS), *7496* (HS, N); *O'Donovan 2252* (HV); *Roig & León 7923* (HV), *8258* (HV); *Van Hermann 3306, 3921, 5032* (all HV).—Matanzas: *Britton, Britton & Shafer 28* (HV, Y), *584* (HV, Y); *Britton & Wilson 130* (HV, Y); *León 9645* (HS); *Killip 13941* (N).—Santa Clara: *Baker 2485* (HV), *4947* (HV); *Jack 4807, 4994, 5296* (all N), *5485* (N, Y), *5770* (N); *Luna 395* (HS), *613* (HS); *L. B. Smith et al. 3075* (N).—Camagüey: *Shafer 121* (F, N, Y), *380* (F, N, Y), *442* (N, Y), *2529* (F, N, Y), *2564* (F, N, Y), *2768* (F, N, Y).—Oriente: *Bailey 15109* (N); *Britton 2019* (F, N, Y); *Ekman 1431, 2025, 2069, 2607, 2696, 2708, 3718, 4737, 4925, 5045, 5663, 5665, 7551* (all S), *7977* (N, S), *8844* (S), *9837* (S); *León 8675, 10362, 10558* (all HS); *Maxon 4002* (N); *Pollard, Palmer & Palmer 79* (F, Minn, N, Ph), *249* (F, Minn, N); *Shafer 3071, 3073, 3208* (all N, Y);

Wright 197 (BM, Bo, Brux, G, Gen, HA), *1245* (Bo, F, G, HA, N, S, V), *2597* (BM, Bo, G, Gen, HA).

HAITI: *Cook 48* (N); *Ekman H9347* (N); *Leonard 3038a, 3314, 3462* (all N), *3463* (F, N), *3562* (BM, G, N, Ph), *3610* (F, G, N, Ph), *4818* (G, N, Ph), *4852* (N, Ph), *4997* (F, N), *5135* (G, N); *Leonard & Leonard 7140, 7394a, 7662, 7952, 8116, 8521, 8811, 9631, 9726, 9788, 11181, 11294, 11323, 11901, 12713, 13952, 13962* (all N); *Miller 222* (N), *225* (N); *Nash 155* (F, Y).

DOMINICAN REPUBLIC: *Abbott 1469, 1715a, 1724, 2507, 2834* (all N); *Faris 24, 121, 310, 442* (all N); *Fuertes 160* (BM, F, G, N, V); *Miller 1116* (N), *1117* (N); *Millspaugh 831* (F), *854* (F); *Raunkiaer 1356* (Cop); *Rose 3796, 4164, 4442* (all N); *Wright, Parry & Brummel 27, 28, 30* (all N).

JAMAICA: *S. Brown 115* (Ph); *P. Browne* (Linn); *Crawford 115, 680, 681, 737, 742, 759, 824* (all Ph); *Fredholm 3076* (N); *Harris 6877* (F, J), *12747* (F, G, J, N); *Lehmann 3800* (Bo); *Lloyd 1074* (F); *Maxon 1679* (N), *10398* (N); *Maxon & Killip 338* (F, G, N, Y), *343* (N, Y), *389* (F, G, N, Y), *1426a* (N), *1580* (N), *1655a* (F, N, Y), *1657* (F, G, N, Y), *1701* (F, G, N, Y); *Miller Herbarium* (BM, type of *P. glabra*); *Millspaugh 1994* (F); *Swartz* (S, type of *P. angustifolia*); *Wight 23* (F).

PUERTO RICO: *Britton, Cowell & Brown 4637* (F, Y), *5030* (F, N, Y); *Britton & Wheeler 38* (F, N, Y); *Goll 185, 311, 312, 331, 409* (all N); *Heller 6068* (F, G, HV, N, Ph), *6324* (F, G, HV, N, Ph); *Prey 21* (N), *80* (N); *Sintenis 644* (G, N, S), *811* (G, N, S), *811c* (B), *1681* (J, N), *3487* (G, N), *3488* (F, G, Gen, N, V), *5114* (G, N), *5667* (Gen, V), *5668* (G); *Shafer 2506* (F, N, Y), *2788* (N, Y); *Stahl 608* (S); *Stevenson 1856* (N); *Underwood & Griggs 472* (N), *601* (N).

VIRGIN ISLANDS (U. S.): St. Croix, *Ricksecker 186* (F, Minn, N), *322* (F, N); *J. B. Thompson 367* (N). St. John, *Britton & Shafer 226* (N, Y), *587* (N, Y). St. Thomas, *Britton & Marble 1228* (N, Y); *Wydler 88* (Gen).

VIRGIN ISLANDS (British): Tortola, *Fishlock 24, 39, 141* (all G), *152* (G, N, Ph).

ST. MARTIN: *Boldingh 2721, 2734, 2757, 2764, 2834, 2871* (all Ut).

SABA: *Boldingh 314* (Ut), *1668* (Ut).

ANGUILLA: *Boldingh 3498* (Ut).

ST. EUSTATIUS: *Boldingh 192, 271, 313, 342, 490, 690, 713* (all Ut), *837* (Ut, Y).

BONAIRE: *Boldingh 7042, 7263, 7396* (all Ut).

ANTIGUA: *Rose 3460* (N).

GUADELOUPE: *Duss 3616* (Cop, N), *3909* (N, Y), *3929* (N); *Stehlé 190, 253, 317* (all N).

DOMINICA: *Jacquin* (V).

MONTSERRAT: *Shafer 424* (F, N, Y).

MARTINIQUE: *Bélanger 811* (P); *Duss 873* (Y), *874* (Cop), *4690* (Cop); *Hahn 586* (BM).

BARBADOS: *Dash 518* (N).

ST. VINCENT: *H. H. & G. W. Smith 615* (G, J), *1314* (BM), *1616* (N). Between Kingston and Calliagua, *Eggers*(?) *15718* (B, type of *P. calliaquatica*).

GRENADA: *Broadway 1720* (G); *Miller 316* (N).

ARUBA: *Boldingh 6515* (Ut, Y).

CURACAO: *Boldingh 4726, 4926, 5107* (all Ut); *Britton & Shafer 2975* (N, Y); *Curran & Haman 205* (G, N, Ph); *Killip & Smith 21044* (G, N, Y).

TRINIDAD: *Broadway 7726* (N); *Kuntze 961* (Y); *Trinidad Herb. 526, 641, 5017, 10389, 12568* (all T), *3618* (N, T).

VENEZUELA: Sucre: *Broadway 285, 291, 340, 374* (all G, N, Y).—Miranda: *Pittier 11970* (Gen, N, Y).—Federal District: *Eggers 13440* (Cop); *Pittier 7871* (N), *9567* (G, N), *9783* (N), *12259* (N), *13598* (N).—Aragua: *Fendler 473* (G, Mo, Y).

COLOMBIA: Magdalena: *H. H. Smith 1531* (Y), *2624* (F, Mo, N, Y).—Atlántico: *Pennell 12074* (G, N, Ph, Y).—Bolívar: *Billberg 121* (S), *122* (S); *Killip & Smith 14164* (A, G, N, Y), *14168* (G, N, Y), *14329* (G, N), *14479* (G, N, Y).—Norte de Santander: *Killip & Smith 20887* (G, N).—Santander: *Killip & Smith 15029* (G, N, Y), *16834* (G, N, Y), *18398* (G, N).—Cundinamarca: *Lehmann 2515* (Bo, N); *Triana, Passiflora* No. 5 (HNC). Tocaima, *Goudot* (P, type of *P. suberosa* var. *longiloba*).—Antioquia: *Archer 152* (N), *370* (N, Ut), *759, 1009, 1041* (all N); *Pennell 10919* (G, N).—Caldas: *Killip 10165* (G, N, Ph, Y); *Pennell 10182* (G, N, Ph, Y), *10641* (N).—El Valle: *Killip 11262* (N), *11673* (G, N, Ph, Y); *Lehmann 3332* (Bo, N), *3387* (BM).

ECUADOR: *Eggers 15237* (F).—Manabi: *Eggers 15583* (P).—Guayas: *Eggers 14427* (N); *Holmgren 55* (BM, N, S); *Mille 42a* (N); *Stevens 322* (N), *324* (N).—León: *Lehmann 4579* (G, N).—Huigra:

Rose 22294 (G, N, Y), *23854* (N).—Colón (Galapagos Islands): *Andersson* (K, type of *P. tridactylites*, P, S); *Baur 160* (G); *Heindachner 68* (V); *Howell 8747* (CAS), *9665* (CAS, N); *Schimpff 52* (CAS, Gen, Ut); *Snodgrass & Heller 321* (G), *625* (G); *Stewart 2074* (CAS, G), *2075* (CAS, G, N, Y), *2076* (CAS), *2077* (CAS, G), *2078* (CAS), *2079* (CAS, G, N), *2080, 2081, 2082* (all CAS, G).

PERU: *Dombey 734* (P).—Túmbez: *Weberbauer 7638* (F).—Lima: *Gaudichaud 154* (Gen, P), *154bis* (P); *Killip & Smith 21524* (N, Y); *Macbride 2855* (F); *Pennell 12207* (N, Ph, Y), *14772* (Ph); *Rose 18773* (N, Y); *C. S. Sargent 36* (N); *Savatier 1438* (K), *1439* (K); *Wawra 2651* (V).

BOLIVIA: La Paz: *Mandon 612* (BM, G, Gen, K, P, S, V, Y).—Santa Cruz: *Herzog 1657* (S, V).—Tarija: *Pflanz 4005* (N).

BRAZIL: *Glaziou 5875* (Cop), *21461* (Cop).—Minas Geraes: *Chase 9262* (N); *Mosén 1855* (S); *Regnell III.640* (S); *Warming 1176* (Cop), *1177* (Cop).—Rio de Janeiro: *Peckholt 8* (V), *595* (Brux).—São Paulo: *Löfgren 343* (Cop), *436* (Cop).—Paraná: *Dusén 9960, 15932, 18020* (all S).—Rio Grande do Sul: *Lindman 247* (S); *Malme 614* (S); *Reineck & Czermak 361* (S).

PARAGUAY: *Wawra 344* (V).

ARGENTINA: Jujuy: *Venturi 5175* (N).—Tucumán: *Venturi 357* (N), *1607* (N), *4404* (N, Ut), *7916* (G, N).—Misiones: *Ekman 1511* (S), *1512* (S).

As indicated by the long synonymy cited above, this species is extremely variable, the great range in the form of the leaves, in the size of the flowers, and in the degree of pubescence having led to the proposal of these numerous species and varieties. Examination of a large number of specimens, many more than are here cited, and the study of numerous plants in the field lead to the conclusion that there are no constant characters that will permit the maintenance of these variants as distinct. In fact, a single plant will often exhibit nearly all the characters which have been relied upon to differentiate these "species." Throughout the range of the species the occurrence of entire and deeply lobed leaves on the same individual is common. On the Galapagos Islands, for example, there are two variants; one (*P. lineariloba* Hook. f.) has very narrow leaf lobes, exactly matching part of the material collected by Safford and Mosier (*No. 227*) in the Royal State Palm Park, Florida; the other (*P. tridactylites* Hook. f.) agrees closely with the Browne collection from Jamaica, in the Linnean Herbarium.

In the great majority of the specimens examined the petiolar glands are minute (less than half a millimeter in diameter), and are distinctly stalked. In the case of a few Andean specimens and an occasional one from other localities, the glands are nearly as large as those of *P. coriacea*, and are subsessile.

Although strict adherence to the rules of page priority would require the use of the name *P. pallida*, it seems best to apply *P. suberosa* to this species because (1) the form with 3-lobed leaves is much the commoner and has the wider distribution; (2) it was represented in the Linnean Herbarium by a specimen which Linnaeus had at hand in 1753; and (3) it is the name in general use.

LOCAL NAMES: "Meloncillo," "pintero," "huevo de gallo" (Cuba); "noxbe cimarrón" (Peru).

10. **Passiflora gracilis** Jacq. ex Link, Enum. Pl. 2: 182. 1822.

Cieca gracilis M. Roemer, Fam. Nat. Syn. 2: 141. 1846.

Plant glabrous throughout; stem very slender, subquadrangular; stipules narrowly linear, 1 to 1.5 mm. long, falcate; petioles 4 to 5 cm. long, very slender, biglandular in lower half, the glands stipitate, subopposite; leaves 3 to 7 cm. long, 7 to 10 cm. wide, 3-lobed about to middle (lobes subequal, or the middle lobe the longest, obtuse or rounded), cordate at base, 3-nerved, entire, thin-membranous, glaucous beneath; peduncles filiform, 2 to 3 cm. long; bracts setaceous, 1 to 1.5 mm. long, dissitate; flowers about 2 cm. wide; sepals narrowly oblong, about 1 cm. long, 0.2 to 0.3 cm. wide, obtuse, concave, white; petals none; corona filaments in 2 series, the outer filiform, 6 to 8 mm. long, the inner capillary, 1 to 1.2 mm. long, minutely capitellate; operculum membranous, plicate, slightly incurved, crenulate; nectar ring annular; limen annular; ovary ovoid, glaucous; fruit ellipsoidal, about 2.5 cm. long, 1.5 cm. in diameter, the exocarp parchment-like, scarlet (or purplish?); seeds subglobose, slightly flattened, about 4 mm. long, 3 mm. wide, abruptly acute at each end, reticulate with a hexagonal reticulation at center of each face, surrounded by 6 smaller reticulations.

TYPE LOCALITY: Uncertain, the type seen at Vienna.

ILLUSTRATIONS: Jacq. Eclog. Pl. Rar. 2: *pl. 168;* Rev. Hort. IV. 9: 14. *f. 1.* 1860; Bot. Reg. 11: *pl. 870;* Amer. Nat. 18: 820; Flora 111–112: 407. 1918.

DISTRIBUTION: Frequently cultivated; perhaps a native of Venezuela.

SOUTH CAROLINA: Abbesville Co., introduced, *A. P. Anderson* in 1898 (N). *Dupre 1580* (Minn).

CALIFORNIA: Cultivated at Pacific Beach, *Kumm* in 1928 (N).

COSTA RICA: Hatillo, 1,100 meters, *Solís 31* (F).

VENEZUELA: "In regione temperata," *Moritz 1963* (BM, P, V). —Aragua: Colonia Tovar, *Fendler 472* (G, K, Ph, Y), *2328* (K).

BRITISH GUIANA: Cultivated, *British Guiana Herb. 135* (BG, N), *139* (BG).

BRAZIL: Mattogrosso: *Pohl 1228* (Brux, V).

Passiflora gracilis differs from its apetalous allies of this section in the larger, elongate fruit. It is, moreover, a much more delicate plant. Cultivated specimens are to be found in many herbaria. The only ones I have seen which from their labels give no indication of such an origin are the Costa Rican, Venezuelan, and Brazilian collections cited above. This species has served as the basis for interesting studies by J. Arthur Harris. See Harris: Prolification of the fruit in *Capsicum* and *Passiflora*, Mo. Bot. Gard. Ann. Rep. 1906: 135–145. 1906; Harris and Gortner: On the influence of the order of development of the fruits of *Passiflora gracilis* upon the frequency of teratological variations, Plant World 17: 199–203. 1914.

11. **Passiflora trinifolia** Mast. Bot. Jahrb. 8: 217. 1887.

Stem slender, terete, flexuous, minutely puberulent; stipules ovate-lanceolate to orbicular, 5 to 8 mm. long, 4 to 6 mm. wide, mucronate; petioles 0.5 to 1 cm. long, bearing 2 flattened glands at or slightly above middle, or these occasionally absent; leaves 1.5 to 2.5 cm. long, 2.5 to 6 cm. wide, 3-lobed to middle (lobes triangular-ovate, nearly equal or the lateral somewhat the larger, acute or obtuse), subcordate and 5-nerved at base, reticulate-veined, ocellate, coriaceous, glabrous or minutely puberulent; peduncles in pairs, as long as or slightly shorter than the adjacent petioles, articulate above the middle; flowers 1 to 2 cm. wide, yellowish green; sepals deltoid-lanceolate, 7 mm. long, 6 mm. wide, subcoriaceous; petals none; corona filaments in a single series, filiform, dilated toward apex, 4 mm. long, erect; operculum membranous, plicate, the margin fimbrillate; limen annular; ovary subglobose, glabrous or minutely puberulent.

TYPE LOCALITY: Santa Rosa, Baja Verapaz, Guatemala.

DISTRIBUTION: Department of Baja Verapaz, central Guatemala, between 1,200 and 1,600 meters altitude.

GUATEMALA: Baja Verapaz: Santa Rosa, *Lehmann 1314* (Bo, K, type); *Türckheim 1207* (G, K, N), *II.2368* (N). Cuesta de Cachil, *Pittier 160* (N).

The foliage of this plant bears a slight resemblance to that of certain West Indian forms of *P. suberosa*. *Passiflora trinifolia* is readily distinguished from that, as well as from all other apetalous species of *Passiflora*, by its large stipules.

12. **Passiflora holosericea** L. Sp. Pl. 958. 1753.

Decaloba holosericea M. Roemer, Fam. Nat. Syn. 2: 164. 1846.

Passiflora reticulata Sauv. Fl. Cub. 56. 1873.

(?)*Passiflora tuxtlensis* Sessé & Moc. Fl. Mex. 229. 1887.

Plant usually densely pubescent throughout (glabrescent in certain Cuban forms); stem terete, striate, corky below; stipules filiform, 6 mm. long; petioles 1 to 2.5 cm. long, bearing near middle 2 dark brown, sessile glands 2 mm. in diameter; leaves 5 to 10 cm. long, 4 to 7 cm. wide, 3-lobed (lobes rounded, mucronulate, the middle one much longer), entire, bidentate at the cordate base, 3-nerved, reticulate-veined, velvety-pubescent above, densely and softly tomentose beneath; peduncles solitary or in pairs in the axils of the leaves, 2–4-flowered (rarely those of the lower axils 1-flowered), the flowers pediceled, the pedicels bearing 2 or 3 subulate bracteoles 2 mm. long; flowers 3 to 4 cm. wide; sepals ovate-lanceolate, 1.3 to 1.5 cm. long, 0.5 cm. wide, obtuse, densely pubescent without, glabrous within, white, sparingly spotted with red; petals oblanceolate or spatulate, 1 to 1.3 cm. long, 0.6 cm. wide, white, streaked with brown and mottled with red; corona filaments in 2 series, the outer lanceolate, 7 mm. long, 1 mm. wide, yellow at apex, purple toward base, the inner capillary, 4 to 5 mm. long, clavate; operculum membranous, closely plicate, the margin incurved; limen annular, close to the operculum; ovary obovoid, densely pilose; fruit globose, 1.5 cm. in diameter, glabrous or softly pubescent; seeds obovate-obcordate, about 3 mm. long, 2 mm. wide, coarsely reticulate, the axis curved.

TYPE LOCALITY: Veracruz, Mexico.

ILLUSTRATIONS: Martyn, Hist. Pl. Rar. *pl. 49;* Amoen. Acad. 1: *pl. 10, f. 15;* Cav. Diss. 10: *pl. 291;* Bot. Reg. 1: *pl. 59;* Bot. Mag. 45: *pl. 2015.*

DISTRIBUTION: Mexico to Honduras; central and western Cuba; northern Colombia and Venezuela. Tropical zone, up to 700 meters altitude.

MEXICO: *Haenke 849* (Pr); *Sessé & Mociño 4468* (Bo, Ma).—Colima: Manzanillo, *Ferris 6191* (N). Sinaloa: Mazatlán, *Rose, Standley & Russell 14132* (F, G, Mo, N, Y).—Tepic: Tres Marías Islands, *Maltby 55* (N, Y); *Nelson 4249* (F, G, N); *Ferris 5586* (N), *5739* (N, SU); *Mason 1711* (N, S); *Howell 10419* (N).—Veracruz: Baños del Carrizal, *Purpus 6022* (BM, Cal, F, G, Mo, N, Y). Antigua, *Purpus 6237* (Cal). Monserrate, *Purpus 10025* (N). Veracruz, *Krausse* (BW); *De Salza* (P).—Michoacán: Petatlán. *Langlassé 725* (P).—Guerrero: Acapulco, *Palmer 307* (G, K, N, Y), *411* (N); *Bonpland* (B); *Barclay 1976* (BM); *Née* (Ma).—Oaxaca: Oaxaca, *Galeotti 3675* (P). Salinitas, *Conzatti 4492* (N). Huilotepec, *Nelson 2577* (G, N, Y). San Francisco Ranch, *Conzatti, Reko & Makrinius 3267* (G).

GUATEMALA: Gualán, *Deam 6336* (Cal, F, G, Mich, N, V).—Zacapa: Zacapa, *Deam 6358* (F, Mich, N, Y); *Kellerman 7774* (F).

HONDURAS: Santa Bárbara: San Pedro Sula, *Thieme 5244* (B, Bo, G, N).

SALVADOR: Chalatenango, *Calderón 2362* (N).

CUBA: *Wright 3568* (B, G, HA, N, S, Y); *Rugel 828* (Y).—Pinar del Río: El Mariel, *Ekman 16350* (B, N). Sierra de Anafe, *Wilson 11516* (B, N, Y). Retiro, San Cristóbal, *Sauvalle* (HA, No. 886, type of *P. reticulata*). Loma Pelada, *León 12519* (HS).—Habana: Habana, *Née* (Ma). Sierra de Anafe, *Ekman 16915* (B, S); *Killip 13507* (N). Lomas de Camoa, *Ekman 13514* (B, S). Sierra de Tapaste, *Ekman 13586* (B, S).—Matanzas: Pan de Matanzas, *Ekman 16465* (B, S). Matanzas, *Rugel* 350 (B, BM); *De la Sagra* (P).

BRITISH GUIANA: Cultivated(?), *British Guiana Herb. 131* (BG), *137* (BG).

VENEZUELA: *Warming 360* (Cop).—Miranda: Guarenes, *Pittier 11263* (N), *11910* (Gen, N, Y).—Federal District: El Zigzag, *E. Pittier 65* (N, Y). El Limón, *Pittier 13499* (F, N).—Aragua: Colonia Tovar, *Moritz 1674* (BM).—Carabobo: Canoabito, *Pittier 9131* (G, N).

COLOMBIA: Magdalena: Santa Marta Mountains, *Schultze 1622* (B).—Atlántico: Salgar, *Pennell 12059* (G, N, Ph, Y).

Masters placed this among the species of *Plectostemma* with 1-flowered peduncles. Occasionally the peduncles in the lower axils are 1-flowered, owing perhaps to the additional pedicels having become detached or not having developed. Harms associates it

with *P. multiflora* and *P. sexflora* in his section *Decaloba-Polyanthea*. Clearly, however, its relationship is with *P. suberosa*. The similarity of the seeds of the two species, as well as other likenesses, such as corky stem and leaf shape, indicates a close alliance between the two.

The single specimen of *P. holosericea* in the Linnean Herbarium probably was not in Linnaeus' possession in 1753. His description was based primarily upon Martyn's description and illustration of a plant grown in England from seeds obtained by Houston at Veracruz.

None of the Sessé and Mociño specimens in the Madrid herbarium are labeled *P. tuxtlensis*, and their description of that species does not apply well to any known Mexican species. Certain details suggest *P. holosericea*, *P. jorullensis*, *P. Helleri*, and *P. Rovirosae*.

LOCAL NAMES: "Etamo real;" "itamo real" (Acapulco).

13. **Passiflora Sodiroi** Harms, Repert. Sp. Nov. 18: 298. 1922.

Stem subterete or angulate, softly short-pubescent; stipules lanceolate, falcate; petioles 2 to 2.5 cm. long, biglandular at or below middle, the glands short-stipitate; leaves ovate, 8 to 10 cm. long, 5 to 6 cm. wide, 3-lobed towards the apex (lateral lobes smaller than the middle lobe, occasionally wanting, the lobes rounded or acute), rounded or subtruncate at base, conspicuously reticulate, subcoriaceous, glabrescent above, softly pubescent or tomentellous beneath; inflorescence cymose, the cymes in pairs, several-flowered, pubescent; bracts setaceous, 4 to 5 mm. long; calyx tube saucer-shaped; sepals narrowly lanceolate, about 1 cm. long; petals linear-lanceolate, 6 to 7 mm. long; corona filaments filiform, capitellate, in 2 or 3 series; operculum closely plicate; limen annular; gynophore about 6 mm. long; ovary globose, pubescent; fruit globose, about 1 cm. in diameter.

TYPE LOCALITY: Alaspongo, Pichincha, Ecuador.

DISTRIBUTION: Known only from the type locality, in north-central Ecuador.

ECUADOR: Pichincha: Alaspongo, *Sodiro 562* (B, type).

This species is discussed under *P. apoda*.

14. **Passiflora apoda** Harms, Notizbl. Bot. Gart. Berlin 10: 809. 1929.

Stem subangular, cano-villous or cano-villosulous; stipules linear-lanceolate, 3 to 5 mm. long, 1.5 to 2 mm. wide at base, falcate; petioles 1 to 3 cm. long, biglandular at or below middle, the glands sessile or

short-stipitate; leaves ovate-oblong or oblong, rarely suborbicular, 6 to 16 cm. long, 4 to 11 cm. wide, 3-lobed (lobes obtuse or acute, the middle lobe usually much the larger, the lateral lobes sometimes much reduced), rounded or retuse at base, subcoriaceous, glabrescent above, sparingly to densely cano-pilosulous on the nerves and veins beneath; inflorescence cymose, the cymes in pairs, several-flowered, the rachis 1 to 2.5 cm. long; bracts linear-lanceolate, 4 to 5 mm. long, the bractlets linear-setaceous, 2 to 3 mm. long; flowers 2.5 to 3 cm. wide; sepals broadly ovate, 1 to 1.3 cm. long, 5 to 6 mm. wide, obtuse, fleshy, green without, white within; petals ovate, slightly shorter than the sepals, obtuse, membranous, white; corona filaments filiform, capitellate, in 2 series, the outer 5 to 8 mm. long, greenish white, purple-maculate at base, the inner about 3 mm. long, pink, purple-maculate near apex; operculum closely plicate, pinkish purple, fimbrillate; limen annular; gynophore wanting or rarely very short and stout, 2 to 3 mm. long; ovary globose, pubescent; fruit globose, about 1 cm. in diameter, at length glabrous; seeds obovate, about 4 mm. long and 3 mm. wide, reticulate.

TYPE LOCALITY: Cucarronera, New Quindío Trail, Department of Caldas, Colombia.

DISTRIBUTION: Central Cordillera of Colombia, 2,500 to 3,300 meters, and known from a single collection from northern Ecuador.

COLOMBIA: Antioquia: Las Mintas, south of Caldas, *Pennell 10946* (N).—Caldas: Cucarronera, New Quindío Trail, *Hazen 9688* (B, type, G, N, Ph, Y). Between Laguneta and Magaña, Old Quindío Trail, *Killip & Hazen 9413* (G, N, Ph, Y). San Bernardino, *Killip 10154* (G, N, Ph, Y). Salento, *Hazen 9694* (G, N, Ph, Y). Río San Rafael, below Cerro Tatamá, *Pennell 10391* (G, N, Ph, Y).

ECUADOR: Pichincha: Between Atacatzo and Saloya, *Mille* in 1919 (N).

This species is common along the much traveled Quindío Trail, and it is rather remarkable that it should not have been described until 1929. Some of the specimens collected by the Pennell-Killip-Hazen expedition I distributed as *P. Sodiroi*, and I am not fully convinced that that is not the correct disposition, especially in view of the fact that the Mille specimen, from the general vicinity of the type locality of *P. Sodiroi*, is clearly conspecific with the Colombian material. All but one of the Colombian specimens have abundant flowers, and although the gynophore is wanting in most of them (as it is in the Mille specimen), sometimes a very short, stout gynophore

is present. In *P. Sodiroi* the gynophore is well developed, being about 6 mm. long. As the sepals of that species are narrowly lanceolate and those of *P. apoda* broadly ovate, I am keeping the two separate for the present. Although the sessile or subsessile ovary suggests a relationship with *P. multiflora*, there is a correlation in *P. apoda* of gland-bearing petioles and reticulate seeds, indicating that the species is best placed in the section *Cieca* of *Plectostemma*, where it comes nearest *P. Sodiroi* and *P. holosericea*.

15. **Passiflora dioscoreaefolia** Killip, Journ. Wash. Acad. Sci. 14: 108. 1924.

Stem slender, subtriangular, sulcate, pubescent at nodes with a few hooked hairs, otherwise glabrous; stipules semi-ovate, 7 to 10 mm. long, 3 to 5 mm. wide, attenuate at apex, slightly undulate at margin; petioles up to 2.5 cm. long, finely pubescent with hooked hairs, biglandular near apex, the glands short-stipitate, 2 mm. long, 2 mm. wide; leaves oblong-ovate, 8 to 15 cm. long, 4 to 8 cm. wide, entire, abruptly acuminate, cordulate, 5–7-nerved, entire and slightly thickened at margin, membranous, densely red-spotted, sparsely pubescent with hooked hairs above, glabrous beneath; peduncles solitary or in pairs, up to 4 cm. long, 1-flowered, slightly pubescent with hooked hairs; bracts setaceous, 3 to 4 mm. long, scattered; flower 5 cm. wide (when expanded); sepals ovate-lanceolate, 2 cm. long, 1 cm. wide at base, cucullate at apex, greenish white(?) and slightly pubescent without, white, longitudinally striate with deep purple, within; petals oblong or oblong-spatulate, about 1.2 cm. long, 0.6 cm. wide, obtuse, white, marked like the sepals; corona filaments in a single series, filiform, 1.5 cm. long, white, spotted with deep purple; operculum plicate, the margin lobulate, slightly incurved; limen saucer-shaped, 2 mm. high, crenulate; gynophore and stamens mottled and streaked with deep purple; ovary narrowly ovoid, short-stipitate, glabrous; fruit ovoid, about 15 cm. long(?), 3.5 cm. in diameter, 6-angled; seeds obcordate, about 7 mm. long, 5 mm. wide, and 3 mm. thick, coarsely reticulate.

TYPE LOCALITY: La Palma, Province of San José, Costa Rica, altitude 1,600 meters.

DISTRIBUTION: Known only from the mountain forests of central Costa Rica.

COSTA RICA: La Palma, San José, *Stork 436* (N, type). La Palma de San Ramón, *Brenes 5747* (F), *5764* (F), *5951* (F), *6131* (F), *11392* (F), *11899* (F).

The flowers of this species and the presence of glands at the apex of the petioles indicate relationship with *P. bryonioides* and *P. Karwinskii*. It is distinguished from all the species of that group by its entire leaves.

Through study of the material collected by Brenes and recently received by Field Museum, it is possible now to amplify the original description. One of these specimens bears an old fruit which, though it is broken in half, is of mammoth size for species of this relationship.

16. **Passiflora pilosa** Ruiz & Pavón ex DC. Prodr. 3: 330. 1828.

Plant hispid throughout with stiff, pellucid, more or less hooked hairs; stem angulate, terete, grooved; stipules broadly cordate-ovate, 1.5 to 1.7 cm. long, 1.5 cm. wide, strongly nerved, minutely serrulate or entire; petioles 2.5 to 3.5 cm. long, biglandular, the glands clavate, 2 mm. long, 1 mm. in diameter at apex, borne on the upper third of the petiole; leaves 5 to 11 cm. long, 6 to 14 cm. wide, deeply 3-lobed (middle lobe ovate or ovate-lanceolate, acute or subacute, slightly exceeding the ovate, acute lateral lobes), 3–5-nerved, the nerves flattened, the veins conspicuous, irregularly repand-dentate, hispidulous, cordate-cuneate at the basal sinus; peduncles solitary or in pairs, 2 to 3 cm. long; bracts 3, narrowly ovate to oblanceolate, 5 to 6 mm. long, 1.5 to 3 mm. wide, acute, densely ciliate, 2 situated at the base of the flower, the third about 4 mm. lower on the peduncle; flowers 3.5 cm. wide; sepals oblong-lanceolate, 2 cm. long, 0.7 cm. wide, slightly concave at apex, deep red and hispid without, paler, red-streaked, and glabrate within; petals oblong-lanceolate, 9 mm. long, 3 mm. wide, obtuse; corona filaments in a single series, narrowly linear, 1.6 cm. long, 0.6 mm. wide; operculum approximate to the corona, membranous, white, slightly plicate, 4 mm. high, the margin very minutely fimbrillate, incurved; nectar ring annular; limen membranous, white, 1 mm. high, incurved; ovary ovate, tapering at apex, glabrous.

TYPE LOCALITY: Mexico.

DISTRIBUTION: Central Mexico.

MEXICO: *Sessé & Mociño 4475* ["Pavón"] (type; BM, Gen, Ma). Felipe del Agua, *Conzatti* (*C. L. Smith 584;* G).—Michoacán: Loma Santa María, near Morelia, 2,000 meters, *Arsène 7353* (N).—Mexico: Telpintla, 1,840 meters, *Hinton 4261* (K).

The identity of *P. pilosa* has long been in doubt, due to De Candolle's incomplete description and to the fact that Masters con-

fused this species with *P. menispermifolia* HBK. Though giving no diagnosis of the flowers, De Candolle placed the species in *Granadilla*, evidently on the basis of the rather large bracts. Masters misapplied the name *P. pilosa* to a "Pavón" specimen of *P. menispermifolia*, and attempted to reconcile this plant with De Candolle's description of *P. pilosa*. This accounts for the rather curious description of "*P. pilosa*" in the *Flora Brasiliensis*.

Although the bracts of this species, like those of *P. adenopoda*, are larger than in *P. bryonioides* and its allies, it is better placed at this point than in the poorly defined group, *Plectostemma* section *Pseudogranadilla*.

Pavón's name in connection with Mexican specimens indicates that the sheet came from the Pavón Herbarium or was distributed by Pavón. His travels in the New World were confined to Chile and Peru, and most, if not all, of these Mexican collections were obtained by Sessé and Mociño. In the Boissier Herbarium there are specimens bearing labels reading "Herb. Pavón—Peru" and "Herb. Pavón—Sessé & Mociño." The numbers associated with the Sessé and Mociño collections were recently assigned these specimens in the Madrid Herbarium, a partial set of which is deposited in Field Museum. Specimens distributed to other herbaria are of course unnumbered.

17. **Passiflora stellata** Moritz ex Killip, Journ. Wash. Acad. Sci. 17: 423. 1927.

Stem slender, subtriangular, striate, finely pilosulous; stipules setaceous, 5 mm. long; petioles up to 3 cm. long, biglandular at base of blade, the glands 0.5 mm. long; leaves 4 to 6.5 cm. long, 4 to 8 cm. wide, 3-lobed about one-third their length (lobes broadly triangular or triangular-ovate, 2 to 3 cm. wide, acute or obtusish), subtruncate at base, 5-nerved, entire at margin, sparsely and minutely pubescent above, more densely pubescent beneath, membranous; peduncles about 2.5 cm. long; bracts setaceous, scattered; flowers white or greenish(?); sepals oblong, about 2 cm. long, hyaline at margin, cucullate at apex, keeled, the keel terminating in a horn 3 mm. long; petals linear, less than 1 cm. long, obtuse, white, membranous; corona filaments in a single series, liguliform, about 7 mm. long; operculum membranous, 7 mm. high, slightly plicate, erose at margin, white; gynophore slender, striate, slightly swollen at base; stamens very slender, 1 cm. long; ovary ellipsoidal, 6-grooved, glabrous.

TYPE LOCALITY: "In reg. temp. et subfrig.," New Granada. (The collections of Moritz labeled New Granada were made in what is now Venezuela.)

DISTRIBUTION: Known only from the type material.

VENEZUELA: *Moritz 1961* (BM, P, type).

The shape of the leaves and the presence of glands at the apex of the petioles indicate a relationship with *P. Warmingii*. The stipules, however, are setaceous, not foliaceous; the gynophore is slenderer, and the ovary ellipsoidal, not ovoid.

18. **Passiflora Warmingii** Mast. in Mart. Fl. Bras. 13, pt. 1: 591. 1872.

(?)*Passiflora dumetosa* Barb. Rodr. Contr. Jard. Bot. Rio de Jan. 4: 94. *pl. 17B*. 1907.

Stem angulate, slender, grooved, sparsely hispidulous; stipules semi-ovate, 4 to 6 mm. long, 2 to 3 mm. wide, long-acuminate; petioles up to 5 cm. long, slender, pilosulous and hispidulous, biglandular at apex, the glands about 1.5 mm. long, thick-stipitate; leaves 3 to 5 cm. long, 4 to 6 cm. wide, 3-lobed (lobes deltoid, acute, mucronulate, the middle lobe 2 to 2.5 cm. long, longer than the lateral lobes), cordate at base, repand-dentate, 3-nerved, membranous, finely hispidulous above, minutely pilosulous and glaucescent beneath; peduncles solitary or in pairs, up to 1.5 cm. long; bracts setaceous, 2 to 2.5 mm. long; flowers about 2.5 cm. wide; sepals lanceolate-oblong, 8 to 10 mm. long, about 5 mm. wide, obtuse, greenish; petals lanceolate-oblong, 6 to 7 mm. long, 2.5 to 3 mm. wide, obtuse, white; corona filaments in a single series, filiform, about 5 mm. long, purplish below middle; operculum plicate, borne close to the corona, deeply crenulate, incurved; nectar ring annular, inconspicuous; limen membranous, adnate to the floor of the calyx, the margin free, entire; ovary ovoid, densely white- or brownish-pilose or squamose-pilose; fruit ovoid, pilose; seeds obcordate, about 4 mm. long, 3 mm. wide, 2 mm. thick, coarsely reticulate, the central mesh prominent.

TYPE LOCALITY: Lagoa Santa, Minas Geraes, Brazil.

ILLUSTRATIONS: Mart. Fl. Bras. 13, pt. 1: *pl. 112;* Arkiv Bot. 8, No. 8: *pl. 1, f. 6*.

DISTRIBUTION: Southwestern Colombia; east-central and southern Brazil; and Paraguay.

COLOMBIA: Nariño: Chabasquia, "Prov. Pasto," *Karsten* (V).

BRAZIL: *Sello 3963* (B, cited by Masters as *P. sicyoides*).—Matto Grosso: Santa Anna, *Malme* in 1903 (S).—Minas Geraes: Lagoa Santa, *Warming 1153* (Cop, type, N). Caldas, *Henschen* (*Regnell III.1701*, S).—São Paulo: Rio Clara, *Löfgren 535* (Cop). Campinas, *Noack 189* (B); *Campos Novaes 850* (N); *Heiner 382* (S), *423* (S). Serra de Caracol, *Mosén 1328* (S).—Rio Grande do Sul: Santa Maria, *Malme 1203* (S). Santo Angelo, *Schwarzer* in 1900 (S).

PARAGUAY: *Jörgensen 3790* (F, Mo, N). Caaguazú, *Hassler 9329* (B, BM).

Apparently the only species of this group in Brazil, *P. Warmingii* is readily distinguished from its allies, except *P. morifolia*, by a densely pilose ovary, scarcely flattened, coarsely reticulate seeds, and less deeply lobed leaves. The points of difference between *P. Warmingii* and *P. morifolia* are discussed under the latter species.

19. **Passiflora morifolia** Mast. in Mart. Fl. Bras. 13, pt. 1: 555. 1872.

Passiflora Weberiana André, Rev. Hort. 57: 113. 1885.

Passiflora erosa Rusby, Bull. N. Y. Bot. Gard. 4: 363. 1907.

Passiflora Warmingii subsp. *chacoensis* R. E. Fries, Arkiv Bot. 8, No. 8: 4. *pl. 1, f. 7.* 1909.

Passiflora Heydei Killip, Journ. Wash. Acad. Sci. 12: 258. 1922.

Stem obscurely 4-angled, grooved, glabrate below, sparingly hispidulous above; stipules semi-ovate, 6 mm. long, 3 mm. wide, long-acuminate, minutely hispidulous, sparsely ciliate; petioles up to 6 cm. long, flattened, hispidulous or pilosulous, biglandular, the glands borne within 1 cm. of the apex, thick-stipitate, 1.5 mm. long, 0.8 to 1 mm. wide; leaves 4 to 11 cm. long, 5 to 15 cm. wide, 3-lobed to below middle (lobes acute, the middle lobe ovate or ovate-lanceolate, usually narrowed at base, the lateral lobes divergent at an angle of about 70 degrees from midrib), deeply cordate at base, 3-nerved, repandly dentate or denticulate, or subentire, membranous, dark green and hispidulous with minute, hooked hairs above, paler and minutely pilosulous beneath; peduncles solitary or in pairs, densely hispidulous, 1 to 2 cm. long, divaricate from the stem at right angles; bracts setaceous, 2.5 to 3 mm. long, borne about 1 cm. below the base of the flower, approximate or the uppermost slightly remote; flowers 2 to 3 cm. wide; sepals linear-oblong, 1 to 1.5 cm. long, 3 to 4 mm. wide, obtuse, without densely hispidulous to glabrescent, green, within glabrous, white, mottled with red, the apex

terminating in a horn about 3.5 mm. long; petals linear-lanceolate, 6 to 8 mm. long, 2 to 4 mm. wide, obtuse, white; corona filaments in a single series, filiform, 5 to 6 mm. long, white, banded with blue or violet; operculum membranous, plicate, the margin slightly incurved, crenulate; nectar ring annular, borne midway between the operculum and the base of the gynophore; limen membranous, adnate to floor of calyx tube, the margin free; ovary subglobose, densely pubescent, glaucous; fruit globose, 2 cm. in diameter, hispidulous, glaucous; seeds very slightly compressed, obcordate-obovoid, 4 mm. long, abruptly tapering at base, coarsely reticulate, the central mesh or the 2 central meshes conspicuous.

TYPE LOCALITY: Tucumán, Argentina, the type collected by Tweedie (*No. 1174*).

ILLUSTRATIONS: Rev. Hort. 59: opp. p. 324; Arkiv Bot. 8, No. 8: *pl. 1, f. 7.*

DISTRIBUTION: Mexico and Guatemala; eastern Peru to Paraguay and Argentina; between 450 and 2,800 meters altitude.

SOUTH CAROLINA: Clemson, introduced, *House 2887* (F, G, N, Y).

MEXICO: *Schnee* (P).

GUATEMALA: *Heyde & Lux 324* (B, N; possibly of same collection as the following).—Santa Rosa: Casillas, 1,200 meters, *Heyde & Lux 3772* (G, N, type of *P. Heydei*, Y).

PERU: *Gay 941* (P); *Pavón* (Bo).—Cuzco: Urubamba Valley, near Echarate, *Weberbauer 7949* (Gen, N).

BOLIVIA: La Paz: Soratá, *Mandon 613* (BM, Bo, Gen, K, P).—Santa Cruz: Buena Vista, *Steinbach 5347* (B, F, N), *5349* (Gen, Y), *8019* (Gen, K, Ut, Y).

PARAGUAY: *Jörgensen 2845* (G). Caaguazú, *Balansa 2199* (Gen).

ARGENTINA: Jujuy: Tilara, *Venturi 9217* (N).—Salta: Río Juramento, *Lorentz & Hieronymus 302* (B, F). Rosario de Lerma, *Venturi 8088* (G, N). El Naranjo, *Venturi 7631* (N).—Tucumán: *Lorentz & Hieronymus 1145* (B), *1146* (B); *Lillo 142* (P); *Stuckert 9480* (Gen). La Florida, *Lorentz & Hieronymus 389* (B, F). Sierra de Zenta, *Venturi 8355* (G, K, N). Los Gómez, Leales, *Venturi 670* (N). Río Sali, *Venturi 1101* (N). Cumbre de Taficillo, *Venturi 5900* (N).—Chaco: Fontana, *Meyer 1033* (N). Colonia Elisa, *Meyer 2233* (N).—Córdoba: *Stuckert 4507* (Gen). Sierra de Córdoba, *Stuckert 14215* (Gen), *15195* (Gen), *18680* (Gen).

This is very closely allied to the last preceding species, apparently differing only in the more deeply lobed, larger leaves, the lobes being

of different shape. However, in view of the unusual distribution of both species (*Warmingii* in southwestern Colombia, southeastern Brazil, and Paraguay; *morifolia* in Mexico, Guatemala, Peru, Bolivia, Paraguay, and Argentina), perhaps they should be treated as a single, variable species.

I can find no differences between the Guatemalan plant which I described as *P. Heydei* and material from Bolivia and Argentina, though its occurrence at such a great distance from the center of distribution is rather remarkable.

The plant referred to by Small (Fl. Southeast. U. S. ed. 2, 809. 1913) as *P. Warmingii*, reported as being well established near Clemson, South Carolina, specimens of which (*House 2887*) are to be found in several American herbaria, is certainly *P. morifolia*.

LOCAL NAME: "Pachito" (Bolivia).

20. **Passiflora bryonioides** HBK. Nov. Gen. & Sp. 2: 140. 1817.

Passiflora bryonifolia Spreng. Syst. Veg. 3: 42. 1826.

Decaloba bryonioides M. Roemer, Fam. Nat. Syn. 2: 163. 1846.

Passiflora inamoena Gray, Pl. Wright. 2: 59. 1853.

(?)*Passiflora Karsteniana* A. Dietr. in Otto & Dietr. Allg. Gartenzeit. 21: 42. 1853.

(?)*Passiflora hirsuta* L. sensu Sessé & Moc. Pl. Nov. Hisp. 155. 1887. Not *P. hirsuta* L.

Passiflora serrata L. sensu Sessé & Moc. Pl. Nov. Hisp. 156. 1887, in part. Not *P. serrata* L.

Stem angulate or subterete, hispidulous; stipules semi-ovate, cuspidate, 5 mm. long, 2.5 mm. wide, more or less ciliate; petioles hirsute or hispidulous, 2.5 to 5 cm. long, bearing within 1 cm. of the apex 2 clavate glands 0.8 to 0.9 mm. long and 0.9 to 1 mm. in diameter; leaves 4 to 7 cm. long, 5 to 9 cm. wide, deeply 3-lobed (lobes oblong, acute or obtuse, the middle lobe usually narrowed at its base, the lateral lobes often 2-lobed), cordate at base, 3–5-nerved, entire or sparingly and irregularly dentate or denticulate, hispidulous on both surfaces; peduncles solitary, 2 to 3 cm. long; bracts setaceous, 3 to 4 mm. long, deciduous; flowers 2 to 3 cm. wide; sepals ovate-lanceolate, 9 to 13 mm. long, 3 to 5 mm. wide, obtuse or acutish, greenish yellow; petals linear or linear-lanceolate, 4 mm. long, 1 mm. wide, white; corona filaments in a single series, filiform, 6 to 7 mm. long, purple-tinged at base; operculum arising at base of preceding, membranous, plicate, strongly incurved; nectar ring

annular; limen adnate to floor of calyx, membranous, the margin free, entire; ovary narrowly ovoid, glabrous; fruit oblong, 3 to 3.5 cm. long, 2.5 cm. in diameter, borne on a stalk about 5 mm. long; seeds ovate, 4 mm. long, 2.3 mm. wide, strongly flattened, closely reticulate.

TYPE LOCALITY: Near Santa Rosa, Mexico.

DISTRIBUTION: Southern Arizona to southern Mexico; sea level to 1,700 meters altitude.

ARIZONA: Pima County: Arivaca, *Peebles, Harrison & Kearney 5644* (N).

MEXICO: *Sessé & Mociño 4477,* in part (Bo, Ma, type of *"P. serrata"* Sessé & Moc.); *Schnee* in 1894 (P). Santa Rosa, *Humboldt & Bonpland 4245* (type; B, P). Jaral, *W. Schumann 601* (B, N, P).—Sonora: Santa Cruz, *Wright 1084* (G, type of *P. inamoena,* K, N, Y). Sierra de las Gronillas, *Hartman 99* (Cal, F, G, Penn). Puerta de Pinitos, *Hartman 152* (G, K).—Chihuahua: Batopilas, *Palmer 32* (G, N, Y). Chihuahua, *Pringle 330* (B, BM, Bo, Brux, F, G, Gen, K, N, P, Penn, Y). Sierra Mapula, *Pennell 18655* (N).—Nuevo León: La Zama, *Abbon* (B).—Durango: Durango, *Palmer 346* (B, BM, Bo, Cal, F, G, K, N, Y). Tejamén, *Palmer 564* (N).—San Luis Potosí: *Schaffner 109,* in part (K); *Parry & Palmer 259,* in part (BM, F, K, N).—Jalisco: Guadalajara, *Pringle 5463* (G).—Guanajuato: Guanajuato, *Dugès 320* (G); *Kerber 1266* (P).—Querétaro: San Juan, *Altamirano 1743* (N). San Juan del Río, *Rose, Painter & Rose 9513* (N, Y). Cadereyta, *Rose, Painter & Rose 9728* (N, Y).—Puebla: San Luis Tultitlanapa, *Purpus 3540* (B, BM, Cal, F, G, N, Y), *8076* (Cal, Mo, N). Guadalupe, *Nicolás* in 1909 (Gen, K, N, P), *48* (F, N). Puebla, *Arsène 1121* (N, P), *1856* (N), *10100* (N), *10174* (N); *Nicolás 235* (N).—Mexico: Ixtapan, *Hinton 1151* (K, N). Acatitlán, *Hinton 4340* (N).—Michoacán: *Arsène* in 1910 (Mo, N).

Much of the material cited above was distributed as *P. inamoena,* a species described as apetalous and placed by Masters in the section *Cieca.* Examination of type material shows narrow, inconspicuous petals to be present, and there apparently are no other characters to distinguish *P. inamoena* from *P. bryonioides.* This species has also been confused with *P. exsudans,* from which it is distinguished by its flattened seeds, the position of the petiolar glands, and the smaller petals.

The plant described as *P. serrata* (evidently intended for *P. serrata* L.) by Sessé and Mociño was clearly based on their number

4477, in the Madrid herbarium. This consists of a small specimen of *P. bryonioides* and two specimens of *P. exsudans*, the description apparently being derived from both elements. The type locality given by the authors is Michaelopolim (i.e., San Miguel), though this name does not appear on the label accompanying the specimen.

LOCAL NAMES: "Cocapitos" (Guanajuato); "pasionaria del monte" (Durango); "granadina" (State of Mexico).

21. **Passiflora Karwinskii** Mast. in Mart. Fl. Bras. 13, pt. 1: 555. 1872.

Passiflora Pringlei Robins. & Greenm. Amer. Journ. Sci. III. 50: 151. 1895.

Passiflora platyneura Eastw. Proc. Amer. Acad. 44: 604. 1909.

Stem angulate, hispid with hooked hairs; tendrils none; stipules linear-falcate, attenuate, 3 mm. long; petioles ascending, 0.5 to 2 cm. long, hispid, biglandular at apex, the glands stipitate; leaves 2 to 4 cm. long, 3 to 5 cm. wide, 3-lobed to middle (central lobe ovate-oblong, rounded or subacute at apex, bearing upon the under surface near its base 2 round, sessile glands, the lateral lobes generally unequally bilobate), subcuneate to reniform at base, entire or irregularly dentate, hispidulous, especially at margin and on nerves; peduncles 1.5 to 2.5 cm. long, hispid; bracts setaceous, about 3 mm. long; flowers about 5 cm. wide; sepals linear-oblong, 15 to 20 mm. long, 6 to 8 mm. wide, hispid without, glabrate within; petals oblong-lanceolate, 10 mm. long, 2.5 mm. wide; corona filaments in a single series, slightly exceeding the petals; operculum membranous, slightly plicate, strongly incurved; nectar ring annular, dark brown; limen membranous, adnate to floor of calyx, the outer margin free, entire; ovary ovoid, glabrous; fruit globose, 1.5 cm. in diameter, tapering at base; seeds flattened, oblong, 4.5 mm. long, 2.5 mm. wide, apiculate, closely reticulate.

TYPE LOCALITY: Mexico. Type collected by Karwinsky (Herb. Munich).

DISTRIBUTION: Southern Mexico, from 2,000 to 2,500 meters altitude.

MEXICO: *Conzatti & Gonzales 1196* (G).—Michoacán: Pátzcuaro, *Pringle 5268* (G, type of *P. Pringlei*).—Oaxaca: Oaxaca, *Andrieux 235* (Gen, P), *308* (Gen, P); *369* (G, K, V). Sierra de San Felipe, *Pringle 5750* (G, N). Buena Vista, *Seler 95* (B). Cuilopán Mountains, *L. C. Smith 44* (G, type of *P. platyneura*). San Felipe, *Rose &*

Hough 4602 (N). Las Sedas, *Rose & Hough 4634* (N). Pueblo Viejo, Nochixtlán, *Conzatti 1834a* (F).

This species is very closely related to *P. bryonioides*, and the two are often confused. In *P. Karwinskii* tendrils are wanting, even in well developed specimens; the stipules are much narrower than in *P. bryonioides*; the flowers are larger; and the petals are much longer and wider.

The original description of *P. Karwinskii* was very meager, and apparently it has heretofore not been associated with the plant more recently described as *P. Pringlei*. I have not seen type material of *P. Karwinskii*, but at Kew there is a detailed sketch of the type, which leaves little doubt that the two are the same.

The retention of *P. platyneura* as a valid species is impossible. That was described as closely resembling *P. Pringlei* but differing in larger flowers, paler pubescence, and broader leaf bases. The additional material that has become available for study since the publication of *P. platyneura* shows that these characters are not constant.

22. **Passiflora colimensis** Mast. & Rose, Contr. U. S. Nat. Herb. 5: 181. *pl. 20*. 1899.

Stem angulate, glabrate, somewhat nodulose below; stipules setaceous, 2 to 3 mm. long, deciduous; petioles sparingly pubescent, 2.5 to 6 cm. long, bearing within 1 cm. of the apex 2 stipitate glands, 2 mm. long; leaves 3 to 6 cm. long, nearly as broad, 3-lobed (lobes rounded or acutish, the middle slightly the longest), cordate at base, 3-nerved, denticulate, sparingly pubescent above with short, hooked hairs, pale and finely pilosulous beneath; peduncles solitary, 3 cm. long, glabrate; bracts setaceous, 4 mm. long, deciduous; flowers 3.5 to 4 cm. wide, white, streaked with red; sepals lanceolate 1.3 to 1.5 cm. long, 5 to 6 mm. wide, acute, puberulent without, glabrous within; petals one-third to one-half as long as the sepals; corona filaments in a single series, filiform, half as long as the sepals; operculum membranous, plicate, incurved, 2.5 mm. long, tinged at apex and near base with purple, the margin minutely crenulate; nectar ring annular, midway between the preceding and base of gynophore; limen annular, thick; ovary elliptic, glabrous; fruit globose, 2.5 to 3 cm. in diameter; seeds obovoid, strongly flattened, closely reticulate.

TYPE LOCALITY: Colima, Mexico.

ILLUSTRATION: Contr. U. S. Nat. Herb. 5: *pl. 20*.

DISTRIBUTION: Western Mexico.

MEXICO: *Thompson* (G).—Sinaloa: Coacoyolitos, *Ortega 6460* (N, Ph).—Michoacán: Baquete, 200 meters, *Langlassé 509* (B, K, N).—Colima: Colima, *Palmer 283* (Cop, N, type, S).—Guerrero: Achotla, *Reko 4962* (N).

Closely related to *P. bryonioides*, but distinguished by its strictly 3-lobed leaves, with broader lobes, the middle lobe not narrowed at the base, and by a much less dense indument. The toothing at the margin is regular and more pronounced in the case of *P. colimensis*.

Reko states that the fruit is edible.

23. **Passiflora pediculata** Mast. Bot. Gaz. 23: 247. 1897.

Plant glabrous throughout; stem slender, angulate; stipules setaceous, 3 mm. long, deciduous; petioles 4 to 6 cm. long, biglandular 0.6 to 1 cm. from the base, the glands minute, short-stipitate, 0.5 mm. in diameter, the stipe 0.4 mm. long; leaves 4 to 5 cm. long, 5 to 8 cm. wide, 3-lobed to middle (lobes ovate-lanceolate, obtuse), shallowly cordate or subtruncate at base, entire, thin, slightly glaucous beneath; peduncles, when developed, nearly 4 cm. long; bracts setaceous, 3 mm. long, scattered on upper half of peduncle; flowers about 3 cm. wide; sepals oblong, obtuse, 1.5 cm. long, 6 mm. wide; petals linear-oblong, 1 cm. long; corona filaments in a single series, filiform, white, transversely banded with violet, erect, slightly shorter than the petals; operculum membranous, plicate, the margin inflexed, entire; nectar ring annular, thin-membranous, incurved; ovary ellipsoid.

TYPE LOCALITY: Río Torres, near San Francisco de Guadalupe, Province of San José, Costa Rica.

DISTRIBUTION: Central Costa Rica.

COSTA RICA: Río Torres, near San Francisco de Guadalupe, San José, *Tonduz 7250* (Bo, Brux, N, type); *Pittier 16701* (Y). San José, *Brade 2329* (B), *2378* (B).

This is easily distinguished from the other species of this group by its long petioles and peduncles, the former minutely biglandular almost at their base, and by setaceous stipules. It is, moreover, entirely glabrous. The foliage bears a close resemblance to that of *P. gracilis*.

24. **Passiflora quercetorum** Killip, sp. nov.

Glaberrima; caulis quadrangulatus; stipulae anguste lineares; petioli ad basin biglandulosi; folia usque ad medium trilobata, lobis

rotundatis, cordulata, membranacea, subtus glaucescentia; bracteae anguste lineares, integerrimae vel 1–2-dentatae; sepala oblonga; petala late lanceolata; corona 1-seriata, filamentosa; operculum plicatum; ovarium ovoideum.

Vine, glabrous throughout, the root slightly corky; stem quadrangular; tendrils weak, filiform; stipules narrowly linear, 3 to 4 mm. long, subfalcate; petioles 3 to 4 cm. long, biglandular at base, the glands saucer-shaped, about 1 mm. in diameter; leaves 3-lobed about to middle, 2.5 to 5.5 cm. along midnerve, 3 to 4 cm. along lateral nerves, 5 to 8.5 cm. wide (lobes rounded, 1.5 to 3 cm. wide), cordulate, denticulate toward base, membranous, dark green above, glaucescent beneath; peduncles solitary or in pairs, 2 to 2.5 cm. long; bracts narrowly linear, dissitate, 3 to 4 mm. long, entire or with 1 or 2 setiferous teeth; flowers about 5 cm. wide; calyx tube patelliform; sepals oblong, 2 to 2.5 cm. long, 6 to 7 mm. wide, pale yellow; petals broadly lanceolate, about 1.5 cm. long, 1 cm. wide at base, pale yellow; corona filaments in a single series, filiform, slightly longer than the petals, proximally violet, distally yellow; operculum membranous, plicate; nectar ring annular; limen membranous, incurved; the ovary ovoid.

Type in the herbarium of the Philadelphia Academy of Natural Sciences, collected in stony, granitic, oak woods above Curahui, base of Cerro Saguarivo, east of San Bernardo, Sonora, Mexico, altitude 1,200 to 1,400 meters, August, 1935, by F. W. Pennell (*No. 19574*). Also, Sierra Charuco, Sonora, *H. S. Gentry 2310* (F).

This species is most nearly related to the Costa Rican *P. pediculata*. Both are glabrous and have narrow stipules, and glands borne near the base of the petiole. From that species *P. quercetorum* is distinguished by its broader bracts, which usually bear a few teeth, larger petiolar glands, and broadly ovate, not linear-oblong, petals.

25. **Passiflora sicyoides** Schlecht. & Cham. Linnaea 5: 88. 1830.

Passiflora odora Link & Otto, Icon. Pl. Rar. 93. *pl. 47*. 1831.

Decaloba sicyoides M. Roemer, Fam. Nat. Syn. 2: 163. 1846.

Stem slender, hispidulous or glabrate, slightly nodulose; stipules semi-ovate, cuspidate, 5 to 7 mm. long; petioles 2 to 6 cm. long, densely hispidulous, bearing at middle 2 subopposite, stipitate glands 1.5 mm. long; leaves 5 to 8 cm. long, 4 to 10 cm. wide, 3-lobed (lobes deltoid-acuminate, mucronate), entire or obscurely denticulate near the cordate base, 3-nerved, thin-membranous, light green above, glaucous beneath, minutely hispidulous on both surfaces; peduncles

solitary or in pairs, slender, half as long as the petioles; bracts setaceous, 3 mm. long; flowers 3 to 4 cm. wide; calyx tube hispidulous without; sepals oblong-lanceolate, 1.2 to 2 cm. long, 0.6 to 1 cm. wide, acute, sparingly hispidulous; petals ovate-lanceolate, 0.5 to 1.2 cm. long; corona filaments in a single series, 7 to 8 mm. long, narrowly linear, white, with 4 or 5 transverse bands of purple; operculum membranous, plicate, purple, incurved, the margin minutely serrulate; nectar ring annular; limen membranous, arising midway between the latter and the base of the gynophore, 1 mm. long, the margin strongly incurved, crenulate; ovary ovoid, stipitate, glabrous; fruit obovoid, tapering to a stipe 2.2 cm. long, glabrous; seeds obcordate, abruptly acute at the base, 5 mm. long, 4 mm. wide, 2 mm. thick, coarsely reticulate.

TYPE LOCALITY: Jalapa, Mexico.

ILLUSTRATIONS: Link & Otto, Icon. Pl. Rar. *pl. 47;* Lemaire, Jard. Fleuriste 3: Misc. 46. 1853; Paxton, Fl. Gard. 3: 24.

DISTRIBUTION: Central and southern Mexico.

MEXICO: *Hahn* in 1865–1866 (P).—Tepic: Between Tepic and Santiago, 1,000 meters, *Mexia 624* (N).—Hidalgo: Trinidad, *Pringle 13427* (N), *13684* (G).—Veracruz: Jalapa, *Schiede & Deppe* (B, type, also type of *P. odora*); *Barnes, Chamberlain & Land 54* (F); *F. W. Johnson* in 1906 (N); *Purpus 6233* (Cal).—Oaxaca: *Ghiesbreght* in 1843 (P).

Much material has been identified as *P. sicyoides* that properly should be referred to *P. exsudans, P. bryonioides,* or *P. Warmingii* (the Brazilian specimen [*Sello 3962*] cited by Masters as *P. sicyoides* is *P. Warmingii*). True *P. sicyoides* apparently is a rather rare species, confined to a small area in Mexico. All the specimens here cited show great uniformity in foliage. The leaves are 3-lobed, the lobes being very acute, and the margin is entire except near the base. The petiolar glands are rather small for the group, and the ovary is conspicuously stipitate. The plants bear a striking resemblance to *Sicyos angulatus.*

26. **Passiflora dolichocarpa** Killip, Journ. Wash. Acad. Sci. 20: 374. 1930.

Stem subquadrangular, hispidulous; stipules semi-ovate, 6 to 7 mm. long, 2 to 3 mm. wide, finely hispidulous, especially at margin; petioles about 2 cm. long, slender, biglandular below middle, the glands clavate, about 1.5 mm. long, 1 mm. wide, sessile; leaves subhastate, 6 to 10 cm. long, 4.5 to 7 cm. wide (middle lobe lanceolate,

acuminate, 3.5 to 4 cm. wide at base, the basal lobes reduced, short-acuminate), sinuate-dentate, cordulate, membranous, finely hispidulous on both surfaces; peduncles in pairs, 3.5 to 4 cm. long, slender, articulate near apex; bracts ovate-lanceolate in general outline, 4 to 5 mm. long, 3 to 4 mm. wide, oblique at base, sessile, irregularly lobed, hispidulous, borne at upper third of peduncle; flowers about 2.5 cm. wide; sepals oblong, 10 to 13 mm. long, 7 to 8 mm. wide, slightly cucullate at apex, hispidulous without, white, longitudinally streaked with red or purple within; petals oblong, 8 to 10 mm. long, 3 to 4 mm. wide, obtuse, white; corona filaments in a single series, narrowly linear, 6 to 7 mm. long, white, banded with red or purple; operculum plicate, about 1.5 mm. high, the margin incurved, minutely denticulate; limen annular; ovary ovoid, tapering at apex, stipitate at base, glabrous; fruit narrowly ovoid-clavate, about 6 cm. long (including a stipe 1.5 cm. long), 1.5 cm. in diameter; seeds broadly obovate, 3 to 4 mm. long, reticulate, flattened.

TYPE LOCALITY: Chicavac, Tecpán, Guatemala.

DISTRIBUTION: Known only from type collection.

GUATEMALA: Tecpán: Chicavac, 2,500 meters, *Salas 584* (N, type).

Although obviously related to *P. sicyoides*, this species bears conspicuous bracts, shaped much like the stipules and cleft somewhat as in *P. adenopoda*. The leaves are distinctly subhastate, proportionately much narrower than in the case of other species of this relationship. The fruit is unusually long and narrow for the group.

The common name is given as "granadilla."

27. **Passiflora podadenia** Killip, Journ. Wash. Acad. Sci. 14: 109. 1924.

Stem subquadrangular, sulcate, hispidulous; stipules semi-ovate, 10 mm. long, 6 to 7 mm. wide, cuspidate at apex; petioles up to 5 cm. long, hispid-hirsute, biglandular below middle (glands pyriform, 1.5 mm. thick, borne on long, slender, hispidulous stalks 6 to 7 mm. long); leaves 4 to 6 cm. long, 5 to 7 cm. wide, deeply 3-lobed (middle lobe oblanceolate, 2 to 2.5 cm. wide, narrowed toward base, short-acuminate), deeply cordate at base, 5–7-nerved, subentire toward ends of lobes, coarsely dentate near base, hispidulous with pellucid hairs, dark green above, paler beneath; peduncles in pairs, about 2 cm. long; bracts linear-attenuate, 4 mm. long, 0.6 to 0.9 mm. wide, entire; flowers 3 to 3.5 cm. wide, white, spotted and streaked with dark purple; sepals ovate-lanceolate, about 15

mm. long, 8 mm. wide, slightly cucullate at apex; petals oblong or oblong-spatulate, 7 to 10 mm. long, 3 mm. wide, obtuse; corona filaments in a single series, narrowly linear, 1 cm. long; operculum erect, 3 mm. high, white, the margin incurved, minutely denticulate; nectar ring annular; limen annular, thick; ovary ovoid, tapering at apex, stipitate, hispidulous, at length glabrate.

TYPE LOCALITY: Hacienda San Antonio, Colima, Mexico.

DISTRIBUTION: Known only from the type collection.

MEXICO: Colima: Hacienda San Antonio, 1,200 meters, *Reko 4839* (N, type).

The long, slender stalks of the glands at once distinguish this species from its nearest relatives of this section. The shape of the leaves and the general aspect of the plant suggest *P. bryonioides*. *Passiflora adenopoda* likewise has long-stalked glands, but the lacerate bracts, differently shaped leaves, and larger flowers at once prevent possibility of confusion with *P. podadenia*.

28. **Passiflora exsudans** Zucc. Abh. Akad. Wiss. München 2: 342. 1837.

Passiflora hispidula Knowles & Westcott, Fl. Cab. 126. 1837.

Decaloba exsudans M. Roemer, Fam. Nat. Syn. 2: 162. 1846.

Passiflora serrata L. sensu Sessé & Moc. Pl. Nov. Hisp. 156. 1887, in part. Not *P. serrata* L.

Passiflora eslavensis Ramírez, Informe Secret. Foment. 1895: 35. 1895.

Plant hispidulous throughout; stem angulate, more or less flattened; stipules semi-ovate, 6 to 10 mm. long, cuspidate; petioles 1 to 3 cm. long, bearing below the middle 2 orbicular, stipitate glands nearly 2 mm. in diameter, the stipe short and stout; leaves 3 to 7 cm. long, 4 to 11 cm. wide, deeply 3–5-lobed (lobes narrowly ovate to ovate-lanceolate, obtuse or subacute), sinuate-dentate at the cordate base, otherwise nearly entire, membranous, hispidulous on both surfaces; peduncles solitary or in pairs, 0.5 to 1.5 cm. long; bracts filiform, 3 to 4 mm. long; flowers 2.5 to 3.5 cm. wide; sepals ovate-lanceolate, 9 to 10 mm. long, 5 mm. wide, green and hispidulous without, yellowish white, streaked with red, and glabrous within; petals triangular-ovate, 6 mm. long, 4 mm. wide, hyaline; corona filaments in a single series, narrowly liguliform, 6 to 7 mm. long, white, banded with purple; operculum membranous, closely plicate, the margin crenate, inflexed; limen annular, thick; ovary subglobose

or ovoid, more or less tapering at base, glabrous; fruit globose or globose-ovoid, 2 to 3 cm. in diameter, the stipe about 1 cm. long; seeds obcordate, nearly terete, 5 mm. long, 4 mm. wide, 3 mm. thick, each face covered with about 20 relatively large depressions.

TYPE LOCALITY: Mexico.

DISTRIBUTION: Central and southern Mexico, 1,700 to 3,000 meters altitude. Also in central Nuevo León, in northeastern Mexico.

MEXICO: *Zuccarini* (B, type, V); *Sessé & Mociño 4473* (Ma), *4476* (Ma), *4477*, in part (Ma, type of "*P. serrata*" Sessé & Moc.); *Karwinski* (Brux); *Schnitz 497* (V).—Nuevo León: Galeana, Sierra Madre Oriental, *Pennell 17093* (N).—San Luis Potosí: *Parry & Palmer 259*, in part (Bo, F, G, Ph, Y). San Luis Potosí, *Schaffner 109*, in part (G), *454* (B, Y). Alvarez, *Palmer 218* (N).—Jalisco: Sierra Madre, near Bolaños, *Rose 2965* (N).—Hidalgo: Zimapán, *Coulter 62* (G, K), *63* (G, K).—Puebla: Esperanza, *Purpus 956* (B), *2500* (B, Cal, Gen, P).—Morelos: Cuernavaca, *Pringle* in 1904 (Cop). —Mexico: Hacienda de Eslava, Ajusco, *Altamirano* in 1895 (F, N, type of *P. eslavensis*); *Pringle 9625* (G). Tequesquipán, *Hinton 819* (K). Comunidad, *Hinton 3848* (K), *4889* (K).—Tlaxcala: Tlaxcala, *Arsène* in 1908 (N).—Michoacán: Pátzcuaro, *Pringle 5278* (G). Morelia, *Arsène 5962* (Mo, N).—Oaxaca: Sierra de San Felipe, *Pringle 5872* (G, N); *Conzatti & Gonzales 235* (G, N). San Felipe del Agua, *Conzatti 584* (N). Tanetze, *Galeotti 3666* (Brux, P).

The original description of *P. exsudans* is very complete and affords no basis for Masters' treatment of the species as a synonym of *P. bryonioides*.

Several of the specimens cited above were distributed as *P. bryonioides* and *P. sicyoides*. They all agree, however, excellently with the type specimen at Berlin. As in the case of many species of this group, the leaves are slightly variable. The seeds are more coarsely reticulate than those of *P. bryonioides*, but less so than in *P. Warmingii*.

This is undoubtedly the plant described in the same year as *P. hispidula*, the identity of which has been in doubt because in the original description no mention was made of foliage characters.

29. **Passiflora truncata** Regel, Ann. Sci. Nat. IV. Bot. 12: 378. 1859; Gartenflora 8: 356. *pl. 276*. Dec., 1859.

Passiflora Lawsoniana Mast. in Mart. Fl. Bras. 13, pt. 1: 580. 1872.

Stem subtriangular, finely pilosulous or puberulent; stipules linear-setaceous, soon deciduous; petioles 8 to 15 mm. long, bearing at or below middle a pair of sessile, saucer-shaped glands about 1 mm. in diameter; leaves 2 to 5 cm. long (along midnerve), 4 to 8 cm. wide, truncate at apex, or obsoletely 2–3-lobed, rounded at base, 3-nerved, ocellate, membranous, glabrescent above, minutely but densely pilosulous beneath; peduncles in pairs, 1 to 1.5 cm. long, very slender; bracts setaceous, deciduous; flowers 2 to 3.5 cm. wide; sepals oblong, about 1 cm. long, 3 to 4 mm. wide, obtusish; petals 3 to 5 mm. long, 2 to 3 mm. wide; corona filaments in 2 series, the outer liguliform, subequal to the petals, radiate, the inner filiform, 3 to 4 mm. long, capitate, erect; operculum plicate; ovary subglobose, cano-puberulent.

TYPE LOCALITY: Southern Brazil.

ILLUSTRATION: Gartenflora 8: *pl. 276.*

DISTRIBUTION: Southeastern Brazil.

BRAZIL: Rio de Janeiro: *Riedel & Luschnath 1108* (type collection; N). Corcovado, *Mosén 2504* (S); *Schenck* in 1886 (B).—Santa Catharina: *F. Müller 179* (K, type of *P. Lawsoniana*).

The leaves of this species are shaped much like those of certain forms of *P. Pohlii*, but the presence of glands on the petioles shows that the two are not at all closely related. Although *P. truncata* apparently is rare and little known, fortunately an excellent drawing accompanied Regel's description.

Masters described *P. Lawsoniana* as apetalous and cited three collections, a Luschnath specimen, *Müller 179*, and a Riedel specimen, with indication that he had seen only the Müller collection. This, which must be considered the type, is in the Kew Herbarium. It bears small, withered petals, and though the flowers are slightly smaller than those shown in Regel's drawing of *P. truncata*, no other differences are discernible. Doubtless the Luschnath and Riedel collections cited as *P. Lawsoniana* actually were a part of the type material of *P. truncata*.

30. **Passiflora exoperculata** Mast. in Mart. Fl. Bras. 13, pt. 1: 556. 1872.

Stem subquadrangulate, densely pilosulous to glabrous; stipules setaceous, 4 to 5 mm. long; petioles up to 1.5 cm. long, biglandular at middle, the glands sessile, less than 1 mm. in diameter; leaves transversely ovate, 1.5 to 3.5 cm. long, 5 to 7 cm. wide, 3-lobed

(lateral lobes widely divergent, lanceolate, obtuse or acutish, occasionally 1-lobed on lower side, the middle lobe variable, broadly deltoid and acute to triangular-ovate and rounded), cordate or truncate at base, 3-nerved, closely reticulate-veined, coriaceous, above glabrous, or puberulent on the nerves and veins, beneath glaucescent, sparsely puberulent to densely pilosulous; peduncles in pairs, up to 2.5 cm. long, articulate at middle; bracts setaceous, scattered; flowers 1.5 to 2.5 cm. wide, greenish white; sepals ovate-lanceolate, 0.8 to 1.5 cm. long, 3 to 5 mm. wide, obtuse; petals linear, 6 to 9 mm. long, 2 to 3 mm. wide, obtuse; corona filaments in 2 series, white, the outer filiform, 3 to 4 mm. long, the inner 2 to 3 mm. long, capitellate; ovary globose, glabrous; fruit globose.

TYPE LOCALITY: Soratá, Bolivia.

DISTRIBUTION: Known only from the type locality, in western Bolivia.

BOLIVIA: La Paz: Soratá, 2,700 to 3,000 meters, *Mandon 611* (BM, Bo, G, Gen, K, type, P, S, Y).

The structure of the floral parts and the shape and texture of the leaves of this and the following species are more characteristic of the section *Decaloba* than of *P. bryonioides* and its relatives. The petiolar glands and the sculpturing of the seeds make necessary their placement here, however.

31. **Passiflora Lobbii** Mast. in Mart. Fl. Bras. 13, pt. 1: 553. 1872.

Passiflora obtusiloba var. *glandulifera* Harms, Repert. Sp. Nov. 19: 25. 1923.

Stem subquadrangular, striate, finely pilosulous or glabrous; stipules subulate-setaceous, 3 to 4 mm. long; petioles up to 1.5 cm. long, biglandular near base, the glands saucer-shaped, minute, sessile; leaves 2 to 3 cm. long, 4.5 to 8 cm. wide, 3-lobed one-third to one-half their length (lobes lance-ovate, subequal, 1.5 to 2 cm. wide, obtuse, mucronulate), shallowly cordate at base, entire at margin, 3-nerved, reticulate-veined, coriaceous, minutely pilosulous on nerves above or glabrescent, lustrous above, dull and yellowish green beneath; peduncles solitary or in pairs, slender, up to 1.5 cm. long, sparingly pilosulous; bracts setaceous, 2 to 2.5 mm. long; flowers 1.5 to 2 cm. wide; sepals oblong-lanceolate, 7 to 9 mm. long, 3 to 3.5 mm. wide, acutish, purple without, grass-green within; petals linear-oblong, 4 to 5 mm. long, 2 to 2.5 mm. wide, obtuse, grass-green; corona filaments in 3 series, those of the outermost subequal to

petals, filiform, purple in lower half, light green in upper half, those of the succeeding series pink or purple, capitellate, the tip green; operculum membranous, plicate, inflexed, minutely fimbrillate; limen annular, close to operculum; ovary globose, glabrous; fruit globose, about 1.5 cm. in diameter; seeds broadly obovoid, 5 mm. long, 3.5 mm. wide, closely reticulate.

TYPE LOCALITY: "Columbia," but almost certainly Peru. (Many well known Peruvian plants have been reported from Colombia solely on the basis of sheets in the Kew Herbarium bearing the inscription "Lobb, Columbia." It is certain that many of these specimens, including the one under consideration, were actually collected in Peru. See Killip: The Botanical Collections of William Lobb in Colombia, Smiths. Misc. Coll. 87: 1–13. 1932.)

DISTRIBUTION: Mountains of central Peru, between 2,700 and 3,200 meters altitude.

PERU: *Lobb* (K, type); *Gay* in 1839–1840 (P); *MacLean* (K); *Mathews* (Gen). Caururu, *Savatier 1436* (K).—Ancash: Between Samanco and Caraz, *Weberbauer 3165* (B, type of *P. obtusiloba* var. *glandulifera*, Gen).—Huánuco: Ambo, *Macbride & Featherstone 2415* (F, N).—Ayacucho: Pampalca, between Huanta and Río Apurímac, *Killip & Smith 23241* (F, N, Y). Huanta, *Killip & Smith 23322* (N).

This species has much the general appearance of *P. obtusiloba*. The presence of petiolar glands in *P. Lobbii* and their absence in *P. obtusiloba*, apparently a fundamental distinction in *Plectostemma*, show that the two actually are widely separated. Harms called attention to the presence of petiolar glands on a Weberbauer specimen of "*P. obtusiloba*" at Berlin, and gave to it the varietal name *glandulifera*. Masters' species *P. Lobbii* has not been associated heretofore with Peruvian plants, due largely to the fact of its being recorded as from "Columbia."

Section 2. **Mayapathanthus**

32. **Passiflora obovata** Killip, Carnegie Inst. Wash. Publ. 461: 308. *pl. 1*. 1936.

Plant glabrous throughout; stem subangular, dark; stipules soon deciduous; petioles about 2 cm. long, biglandular just above middle, the glands oblong, scarlike, about 1 mm. long; leaves obovate or oblong-obovate, 9 to 12 cm. long, 5 to 6.5 cm. wide, subabruptly acuminate at apex, slightly narrowed at base, entire, obscurely quintuplinerved (lateral nerves soon anastomosing, the midnerve prominent, the venation not elevated), subcoriaceous, lustrous, dark

green; peduncles in pairs, 2.5 to 3 cm. long, slender, articulate above middle; bracts minute, triangular-ovate, about 0.7 mm. long, acute, closely appressed to the peduncle and borne near its base; flowers about 4 cm. wide, greenish white; calyx patelliform; sepals oblong, 1.5 cm. long, 0.8 cm. wide, obtuse; petals linear-oblong, about 1.3 cm. long, 0.4 cm. wide; corona filaments in 2 series, the outer subequal to the petals, ligulate, filiform toward apex, the inner capillary, about 2 mm. long, minutely capitellate; operculum membranous, 4 mm. high, closely plicate, slightly incurved; limen annular, low; ovary globose, the young ovules apparently reticulate.

TYPE LOCALITY: British Honduras.

ILLUSTRATION: Carnegie Inst. Wash. Publ. 461: *pl. 1.*

DISTRIBUTION: Known only from the type material.

BRITISH HONDURAS: "Camp 35," British Honduras Geological Survey, 850 meters, *Schipp 713* (F, type).

This species occupies an anomalous position in the subgenus *Plectostemma*, and apparently is best treated as representing a monotypic section. The flowers are characteristic of this subgenus, but the scarlike glands, similar to those of *Astrophea* and of some species in *Granadilla*, the nervation of the leaves, and the very small bracts, closely appressed to the peduncle near its base, separate it from all other species of *Plectostemma*.

Section 3. **Decaloba**

Series 1. **Auriculatae**

33. **Passiflora auriculata** HBK. Nov. Gen. & Sp. 2: 131. 1817.

Passiflora appendiculata G. F. W. Mey. Prim. Fl. Esseq. 223. 1818.

Passiflora cyathophora Desv. in Hamilt. Prodr. 48. 1825.

Passiflora Rohrii DC. Prodr. 3: 326. 1828.

Passiflora cinerea Poepp. & Endl. Nov. Gen. & Sp. 2: 57. *pl. 177.* 1838.

Cieca auriculata M. Roemer, Fam. Nat. Syn. 2: 143. 1846.

Cieca appendiculata M. Roemer, Fam. Nat. Syn. 2: 145. 1846.

Cieca cinerea M. Roemer, Fam. Nat. Syn. 2: 148. 1846.

Decaloba Rohrii M. Roemer, Fam. Nat. Syn. 2: 156. 1846.

Decaloba cyathophora M. Roemer, Fam. Nat. Syn. 2: 157. 1846.

Passiflora Kegeliana Garcke, Linnaea 22: 60. 1849.

Passiflora torta Mast. in Mart. Fl. Bras. 13, pt. 1: 548. 1872.

Passiflora cayaponioides Rusby, Bull. N. Y. Bot. Gard. 8: 107. 1912.

Passiflora cryptopetala Hoehne, Comm. Linh. Telegr. Matto Grosso Ann. 5: Bot. pt. 5: 76. *pl. 112.* 1915.

Stem angulate, glabrous, puberulent, or finely pilosulous; stipules filiform, 2 to 4 mm. long, soon deciduous; petioles 0.5 to 2 cm. long, puberulent, bearing near base 2 auriculate appendages about 2 mm. wide; leaves lanceolate, ovate-lanceolate, or lance-oblong in general outline, 5 to 15 cm. long, 2 to 10 cm. wide, undulately or angulately 3-lobed, rarely unlobed, acuminate, subcordate or rounded at base, 3–5-nerved (rarely 1-nerved), subcoriaceous, glabrous and lustrous above, cinereous-pubescent, glabrate, dull or lustrous beneath; peduncles in pairs, 0.5 to 1 cm. long; bracts setaceous, about 2 mm. long, deciduous; flowers 2 to 2.5 cm. wide; sepals narrowly oblong-lanceolate, 10 to 15 mm. long, 1 to 2 mm. wide, acute, yellowish green or pale greenish; petals linear, 5 to 7 mm. long, 0.5 mm. wide, white; corona filaments in 2 series, the outer filiform, about 1 cm. long, caudate, yellowish green, purple at base, the inner barely 3 mm. long, capitellate, white; operculum membranous, closely plicate, incurved, white; limen annular, fleshy, whitish; gynophore often swollen at base; ovary ovoid, pilosulous; fruit globose, 1 to 1.5 cm. in diameter, densely or sparingly pilosulous, pale yellow; seeds obovate, 5 mm. long, 3 mm. wide, flattened, the testa bearing 6 to 10 undulating ridges.

TYPE LOCALITY: Maypure Cataracts, Orinoco River, Venezuela.

ILLUSTRATIONS: Poepp. & Endl. Nov. Gen. & Sp. 2: *pl. 177;* Comm. Linh. Telegr. Matto Grosso Ann. 5: Bot. pt. 5: *pl. 112.*

DISTRIBUTION: Nicaragua, southeastward to the Guianas and the Amazon Basin of Peru, Bolivia, and Brazil; common in the forests of the tropical zone, ascending to 1,200 meters altitude.

NICARAGUA: *R. Tate 115* (BM, K), *116* (K), *117* (K).

COSTA RICA: Talamanca, *Pittier 8715* (Bo, Brux, N). Shirores, *Tonduz 9326* (Bo, Brux, N, V). Las Vueltas, *Tonduz 13002* (BM, Bo, N). Río Hondo, *Pittier 16919* (K).

PANAMA: Cana, *R. S. Williams 964* (Y).—Canal Zone: Gatún, *Hayes 2* (G, N), *463* (Y). Chagres, *Fendler 122* (G, K, N). Agua Clara, *Stevens 595* (N). Fort Sherman, *Standley 30949* (N).

TRINIDAD: *Broadway 6099* (K); *Fendler 380* (BM); *Trinidad Herb. 642* (T). Sangre Grande, *Trinidad Herb. 11861* (K, T). Piaco,

Britton & Britton 2467 (G, N, Y); *Trinidad Herb. 5293* (T), *9025* (T). Arima, *Britton & Britton 2898* (G, N, Y). Caroni River, *Britton & Hazen 732* (G, N, Y). Mora, *Broadway 6725* (K, Mo).

FRENCH GUIANA: *Richard* (P, type of *P. cyathophora*); *Le Blonde 29* (Gen); *Mélinon 65* (B); *Perrottet* in 1821 (Gen, P); *Leprieur* in 1839 (Gen, P). Karouany, *Sagot 385* (K, Ut). Cayenne, *Rohr* (BM, type of *P. Rohrii*); *Patris* (Gen).

SURINAM: *Hostmann & Kappler* (S); *Landré 620*, in part (Leid). Mariepaston, *Kegel 1320* (Gt, type of *P. Kegeliana*). Republiek, *Kuyper 3* (B, Ut). Scotelweg, *Archer 2649* (N). Zandrij I, *Archer 2785* (N).

BRITISH GUIANA: *Schomburgk 75* (B), *97* (K, P); *Appun 870* (K); *Jenman 7585* (B). Berbice River, *Schomburgk 289* (Gen, K, V). Mt. Roraima, *Schomburgk 960* (B). Potaro River, *Jenman 835* (K). Bartica, *Jenman 4739* (K). Lake Itooribisci, *Jenman 5133* (K). Madoony Creek, *Jenman 4972* (Y). Demerara River, *Persaud 185* (F); *Jenman 6271* (BG); *De la Cruz 2632* (N, Y). Georgetown, *Hitchcock 16914* (G, N, Y). Kartabo, *Hitchcock 17210* (N). Upper Mazaruni River, *De la Cruz 2844* (N, Y). Waini River, *De la Cruz 3742* (N). Wanama River, *De la Cruz 3879* (BG, G, N, Y).

VENEZUELA: Amazonas: Maypure Cataracts, *Humboldt & Bonpland* (type, BW).

COLOMBIA: Santander: Puerto Wilches, *Killip & Smith 14811* (A, G, N, Y).—Boyacá: El Humbo, *Lawrance 551* (S).—Cundinamarca: Cundai, *Triana 2932* (BM, P).—Putumayo: Umbría, *Klug 1681* (N).—El Valle: Buenaventura, *Killip 11754* (N). Dagua, *Pérez 3022* (N).—Nariño: Tumaco, *Barclay 866* (BM). (This sheet bears the data "Tumaco, Mexico," but probably the southwestern seaport of Colombia is the place of collection. Barclay collected in both Mexico and along the Pacific coast of Colombia. This would be the only record of this species in Mexico.)

ECUADOR: Manabi: El Recreo, *Eggers 15101* (B, F).—Guayas: Balao, *Eggers 14530* (N).—León: Naranjal, *Lehmann* in 1890 (K).—Chimborazo: *Spruce 6142* (BM, K, V).—Oro: Zaruma, *Lehmann 8017* (B, G, K, N).

PERU: San Martín: Tarapoto, *Ule 9644* (B, K).—Loreto: Mainas, *Poeppig 1790* (B, Gen, V, type of *P. cinerea*), *2302* (Bo). Yurimaguas, *Killip & Smith 27589* (N, Y), *28311* (F, N, Y), *29035* (N, Y); *L. Williams 4226* (F), *7873* (F, Gen). Iquitos, *Klug 141* (F, N, Y);

Mexia 6388 (K, N). Río Marañón, *Tessmann 4933* (Gen, S). Balsapuerto, *Klug 2933* (Gen, N).—Junín: Puerto Yessup, *Killip & Smith 26336* (F, N, Y).

BOLIVIA: Beni: Cobija, Río Acre, *Ule 9645* (B, Go, K, N, Ut). Rurrenabaque, *Cárdenas* (*Mulford Biol. Expl. 1777;* Y).—La Paz: Tumupasa, *R. S. Williams 432* (BM, Y, type of *P. cayaponioides*).

BRAZIL: Amazonas: São Gabriel de Cachoeira, *Spruce 2222* (K). Manaos, *Killip & Smith 30149* (N, Y). Santa Maria de Marmettos, Rio Madeira, *Ule 6100* (B, Go). Near Roraima, *Ule 8665* (B, Go, K, Ut). São Paulo de Olivença, *Krukoff 8566* (Y). Pará: São Carlos, *Spruce 2962* (K, P). Pará, *Killip & Smith 30273* (N, Y); *Dahlgren & Sella 632* (N). Santarem, *Spruce 9114* (K, type of *P. torta*, P).

The position in the subgenus *Plectostemma* which this and the following species should occupy is not clear. Both have conspicuous auricular appendages near the base of the petioles, but the seeds are sulcate, not reticulate as in all other species of *Plectostemma* with petiolar glands. Perhaps these appendages are not true petiolar glands, although they have the same function. Besides the sculpturing of the seeds, there are other minor details which indicate its relationship with species of the section *Decaloba*, rather than with those of *Cieca*.

In all the Peruvian material above cited, the leaves are dull, glaucous, and cinereous-pubescent beneath, and represent the form described as *P. cinerea*, and the plant from central Brazil described as *P. cryptopetala* appears also to represent this variant. In the Bolivian specimens heretofore referred to *P. cayaponioides*, they are lustrous and concolorous, as in the case of material from northern South America and Central America.

In specimens from Trinidad and Pará the leaves are sometimes quite entire, and two of the basal nerves are so much reduced that the leaf is strictly 1-nerved. Such leaves are sometimes found on the same plant with leaves of typical form, so that the maintenance of *P. torta*, based solely upon this variation, is impossible.

LOCAL NAME: "Sasoboro" (Surinam).

34. **Passiflora ferruginea** Mast. in Mart. Fl. Bras. 13, pt. 1: 556. 1872.

Stem angulate, rufo-tomentose; stipules narrowly linear, 6 to 10 mm. long; petioles 1 to 5 cm. long, bearing near middle 2 auriculiform appendages 2 to 3 mm. wide; leaves broadly ovate in general outline,

8 to 20 cm. long, 5 to 12 cm. wide, subangulately 3-lobed (lateral lobes often much reduced), rounded at apex, rounded or cordulate at base, sinuate-dentate or sinuate-denticulate, 3–5-nerved, membranous or subcoriaceous, densely hirsutulous above, rufo-tomentose beneath; peduncles solitary or in pairs; bracts setaceous, 1 to 2 mm. long; flowers 2.5 to 3 cm. wide; sepals narrowly lanceolate, 1 to 1.5 cm. long, about 3 mm. wide, short-corniculate, greenish; petals narrowly linear, about 7 mm. long and 1 mm. wide, greenish; corona filaments in 2 series, the outer narrowly linear in lower half, filiform in upper, about 1 cm. long, yellow and violet; the inner filiform, 2 to 2.5 mm. long, capitellate; operculum closely plicate, about 1 mm. high, incurved; limen annular, fleshy, densely tomentose; ovary ovoid, sericeo-villous; fruit broadly ovoid, about 3.5 cm. long, 2.5 to 3 cm. wide, flattened at ends, yellowish, at length purplish; seeds broadly obcordate, 3 to 5 mm. long, 2.5 to 3 mm. wide, transversely about 5-grooved.

TYPE LOCALITY: Tarapoto, Peru.

DISTRIBUTION: Known only from the general vicinity of the type locality, in northern Peru.

PERU: San Martín: Tarapoto, *Spruce 4901* (K, type). Juanjuí, Alto Río Huallaga, 400 to 800 meters, *Klug 4159* (N), *4299* (N).

Until recently collected by Mr. Klug, this species had been known only from a single fruiting specimen, the type in the Kew Herbarium. Klug's material is in flower, and from it the description of the floral parts has been derived. The species is nearest related to *P. auriculata*, having the same curious appendages on the petioles and the same general sculpturing of the seeds.

Series 2. **Heterophyllae**

35. **Passiflora Berteriana** Balb. ex DC. Prodr. 3: 325. 1828.

Cieca Berteriana M. Roemer, Fam. Nat. Syn. 2: 145. 1846.

Passiflora coarctata Urban & Ekman, Arkiv Bot. 23A, No. 5: 89. *pl. 5.* 1930.

Plant glabrous throughout; stem subangular; stipules falcate-setaceous, up to 4 mm. long; petioles 5 mm. long or less, glandless; leaves up to 1.5 cm. long, 2 cm. wide, subsessile or short-petiolate, ternately 3-parted (leaflets ovate or obovate, 1 to 2 cm. long, 0.5 to 1 cm. wide, tapering to a distinct petiolule, usually 1–3-lobed or -cleft, the ultimate segments rounded or truncate at apex, minutely cuspidate), reticulate-veined, the nerves and veins prominent beneath; peduncles solitary or in pairs, up to 1 cm. long, very slender;

bracts 3, narrowly linear, 2.5 mm. long, entire or 3-cleft; flowers 1 to 1.5 cm. wide; sepals linear-oblong, 7 to 8 mm. long, 1 to 2 mm. wide, obtuse; petals ovate, about 3 mm. long, obtuse; corona filaments in a single series, narrowly liguliform, 2 to 3 mm. long; operculum membranous, plicate, incurved; limen annular; ovary globose, glabrous, about 7 mm. in diameter; seeds obovate, about 2.5 mm. long, 1.5 mm. wide, transversely 6-sulcate.

TYPE LOCALITY: "Santo Domingo."

ILLUSTRATION: Arkiv Bot. 23A, No. 5: *pl. 5.*

DISTRIBUTION: Eastern Cuba and Hispaniola.

CUBA: *Wright 2604* (B, Bo, G, Gen).

HAITI: Petit-Paradis, *Ekman H4542* (B, type of *P. coarctata,* N).

DOMINICAN REPUBLIC: *Bertero* (B, Gen, type).

This species was described as apetalous, but Dr. Harms has kindly dissected for me a flower of the type collection and reports that it has very evident petals. *Passiflora Berteriana* is quite unlike any other species, although it has the general habit of *P. heterophylla.*

36. **Passiflora heterophylla** Lam. Encycl. 3: 41. 1789.

Plant finely hirsutulous throughout; stem subangulate, slender; stipules setaceous, 3 to 4 mm. long; petioles up to 1.5 cm. long, glandless; leaves 3 to 7 cm. long, 4 to 9 cm. wide, palmately lobed nearly to base or the lower occasionally entire and linear or oblong (lobes shallowly or deeply lobulate, the ultimate ones rounded or abruptly acute at apex), cordate at base, membranous or subcoriaceous, hispidulous above, hirsutulous on nerves and veins beneath; peduncles up to 3.5 cm. long; bracts filiform, borne near middle of peduncle, 3 to 4 mm. long; flowers 1.5 to 3 cm. wide; sepals oblong-lanceolate, 8 to 10 mm. long, about 3 mm. wide, obtuse, aristate dorsally below apex; petals linear-oblong, 3.5 to 5 mm. long, 1 to 2.5 mm. wide; corona filaments in 2 series, the outer narrowly liguliform, 5 to 6 mm. long, reflexed, green, violet at base, the inner filiform, 1.5 to 2 mm. long, capitellate; operculum membranous, plicate, incurved, minutely fimbrillate, white below, pinkish above; limen annular; ovary subglobose, glabrous.

TYPE LOCALITY: "St. Domingue."

ILLUSTRATION: Plum. Pl. Amer. ed. Burm. *pl. 139, f. 1.*

DISTRIBUTION: Western Cuba and Haiti.

CUBA: Pinar del Río: Sierra Guacamayas, *Ekman 17983* (B, HS, HV, N, S, Y).

HAITI: *Collector doubtful* (P, type); *Ehrenberg 69* (B). Massif des Matheux, 400 meters, *Ekman H2132* (B, N, S).

Ekman 2132 and *17983* and *Ehrenberg 69* are in fine condition and permit a detailed description of this hitherto little known species. The leaves of a single plant sometimes show great variation; in Plumier's plate they are shown as sinuately 5-lobed, 3-lobed, and entire.

Series 3. **Sexflorae**

37. **Passiflora quadriflora** Killip, Journ. Wash. Acad. Sci. 17: 424. 1927.

Plant glabrous throughout; stem angular, strongly compressed, striate, scabrous; stipules setaceous, about 1 cm. long; petioles 7 to 9 mm. long, tortuous, glandless; leaves narrowly lanceolate, 5 to 8 cm. long, 1.5 to 2 cm. wide, unlobed, acute, mucronulate, rounded or subcuneate at base, entire, 3-nerved (nerves nearly parallel, conspicuous), reticulate-veined, ocellate between lateral nerves and midnerve, coriaceous or subcoriaceous; peduncles in pairs, 2-flowered, the main portion and the branches nearly equal, each about 1 cm. long; bracts setaceous, 3 to 5 mm. long, scattered; flowers rotate-campanulate, about 5 cm. wide, greenish(?); sepals lanceolate, about 2 cm. long, 0.5 cm. wide at base, acute; petals linear-lanceolate, 5 to 6 mm. long, 1 to 1.2 mm. wide, obtuse, white, membranous; corona filaments in 2 series, the outer filiform, 5 to 6 mm. long, the inner capillary, 2 mm. long; operculum membranous, 2 mm. long, slightly plicate, finely fimbriate one-third its length; nectar ring annular; limen shallowly saucer-shaped, 0.5 mm. high; ovary globose; styles very slender, about 8 mm. long; fruit globose-ovoid, subtrigonous, averaging 2.3 cm. long, 2.2 cm. in diameter.

TYPE LOCALITY: Villcabamba, Río Chinchao, Peru.

DISTRIBUTION: Eastern slopes of the Andes in northern and central Peru.

PERU: San Martín: Tarapoto, *Ule 6464* (B, Gen, Go); *L. Williams 5514* (F).—Huánuco: Río Chinchao, 1,900 meters, *Macbride 5189* (F, type, N).

This species presents several unusual characters. The peduncles are 2-flowered, but they do not terminate in a tendril as in the case of *P. cirrhiflora*, *P. tryphostemmatoides*, and *P. gracillima*. The leaves are unlobed, an unusual form in the subgenus *Plectostemma*, to which *P. quadrifolia* clearly belongs. The operculum is more deeply fimbriate than in most species of this subgenus.

38. **Passiflora sexflora** Juss. Ann. Mus. Hist. Nat. 6: 110. *pl. 37, f. 2.* 1805.

Passiflora pannosa J. E. Sm. in Rees, Cycl. 20: *Passiflora* No. 28. 1819.

Passiflora capsularis var. *geminifolia* DC. Prodr. 3: 325. 1828 (error for *geminiflora*).

Meioperis pannosa Raf. Fl. Tellur. 4: 103. 1838.

Cieca pannosa M. Roemer, Fam. Nat. Syn. 2: 148. 1846.

Decaloba sexflora M. Roemer, Fam. Nat. Syn. 2: 164. 1846.

Passiflora floribunda Lemaire, Fl. des Serres 4: 335b. 1848.

Passiflora triflora Macf. Fl. Jamaica 2: 149. 1850.

Passiflora capsularis var. *geminiflora* DC. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 590. 1872.

Passiflora miraflorensis Killip, Journ. Wash. Acad. Sci. 14: 109. 1924.

Passiflora isotriloba Cuf. Archivio Bot. 9: 196. 1933.

Stem densely hirsute, subangular; stipules linear-subulate, about 5 mm. long; petioles hirsute, 2.5 to 3 cm. long, glandless; leaves 3 to 8 cm. along midnerve, 5 to 12 cm. along lateral nerves, 5 to 11 cm. wide, 3-lobed (middle lobe usually shorter than, or occasionally as long as the lateral lobes), rounded or subcordate at base, entire, membranous, rarely subcoriaceous, hirsutulous and usually setulose above, softly villous or tomentose beneath; peduncles in pairs, 2–10-flowered, rarely 1-flowered; bracts and bractlets linear-lanceolate, 3 to 5 mm. long, irregularly few-cleft or subentire; flowers 1.5 to 3 cm. wide; sepals lanceolate, 8 to 15 mm. long, 2 to 4 mm. wide, acute, densely hirsute without, glabrous within, white; petals linear, 8 to 10 mm. long, 1 to 1.5 mm. wide, obtuse; corona filaments in 2 series, the outer as long as the petals, white at apex, purple below, those of the inner series half as long as the outer, purple throughout, capitate; operculum membranous, plicate, lavender, the apex incurved; limen annular; ovary globose, densely brown-pubescent; fruit globose or depressed-globose, 6 to 10 mm. in diameter, densely pubescent; seeds obovate, slightly flattened, black, coriaceous, transversely 6–7-sulcate, the ridges rugulose.

TYPE LOCALITY: Dominican Republic.

ILLUSTRATIONS: Ann. Mus. Hist. Nat. 6: *pl. 37, f. 2;* Engl. & Prantl, Pflanzenfam. ed. 2, 21: 499. *f. 230E, F;* Mutis, Icon. Pl. Ined. 26: *pl. 12.*

DISTRIBUTION: Southern Florida and Greater Antilles, and on the continent from southern Mexico to Panama; also in the Central Cordillera of Colombia.

FLORIDA: Dade Co.: Sykes Hammock, *Small & Mosier 5484* (S, Y); *J. A. Harris C17358* (Minn). Goodburn Hammock, *Small & Mosier 5920* (S). Costello and Ross Hammock, *Eaton 668* (F). Cauldwell's Hammock, *Britton 264* (F, K, Y). Cutler, *Small & Carter* in 1903 (F, N, Y). Redlands District, *Moldenke 550* (Y), *552a* (Y).

MEXICO: *Sessé & Mociño 4460* (Bo, Ma), *4461*, in part (Ma). Sierra San Pedro Nolasco, *Jürgensen 796* (BM, Bo, Gen, K), *886* (Gen).—Tepic: Acaponeta, *Rose* in 1897 (N).—Veracruz: *Liebmann 4121* (Cop), *4123* (Cop). Mirador, *Liebmann 4122* (Cop); *Linden 752*, in part (Gen). Orizaba, *Bourgeau 3279* (G, K, P). Zacuapan, *Purpus 2065* (BM, Cal, F, G, N, Y), *10840* (N). Córdoba, *Bourgeau 1897* (B, Bo, Brux, Gen, N, P, S); *Kerber 117* (B, BM, Bo, Brux, Cop, Gen, K, N, P). Fenia, *Purpus 10012* (N).—Oaxaca: Chinantla, *Galeotti 3670* (Brux, Gen, P), *3673* (P).—Chiapas: *Purpus 7294* (Cal).

GUATEMALA: Huehuetenango: Tecaltenango, *Seler 3143* (B, N).—Alta Verapaz: Finca Mocca, *H. Johnson 82* (G, N); *Skutch 1468* (N). Cobán, *H. Johnson 528* (N); *Türckheim 686* (B, G, K, Y), *8216* (B, G, N), *II.614* (Y), *II.1389* (N). Tres Cruces, *J. D. Smith 1624* (K, N). Tactic, *Lehmann 1419* (Bo, G, K), *1431* (Bo).—Baja Verapaz: Purulá, *Türckheim II.1723* (N).—Quiché: San Miguel Uspantán, *Heyde & Lux 3091* (N).—Quezaltenango: Volcán Santa María, *Kellerman 6698* (F).

COSTA RICA: *Oersted 4150* (Cop). Cartago, *Oersted 4120* (Cop); *Standley 50868* (N). Cerros de Irazú, *Reimoser 289* (V, type collection of *P. isotriloba*); *Pittier* (*Tonduz*) *13044* (Bo, K, N). Finca La Cima, San José, *Standley 42617* (N).

PANAMA: Chiriquí: El Boquete, *Pittier 3285* (N). Monte Lirio, *Seibert 180* (Mo).

CUBA: Las Piedras, *Eggers 4756* (B, F, N, P); *Poeppig* in 1824 (V).—Pinar del Río: Sierra del Brujo, *León 12925* (HS). Sierra de Los Organos, *Ekman 10661b* (S).—Santa Clara: Río Hanabaiulla, *Ekman 18491* (B, S). Buenos Aires, *Jack 6829* (N), *7127* (N).—Oriente: Santiago, *Linden 1124* (Brux), *1821* in part (B, BM, Bo, Gen, P, V); *Wright 200* (BM, Bo, Gen, HA). Loma del Gato, *Clement 566* (HS); *León et al. 9869* (HS). Guantánamo, *Hioram 6748* (HS). Sierra de Nipe, *Ekman 3114* (N, S), *9912* (S); *Shafer 2980* (B, F, N, Y),

Sierra del Cobre, *Ekman 7878* (S). Sierra Maestra, *Ekman 8109* (S). Corojo, *Ekman 5047* (S).

HAITI: *Jaeger 164* (B). Furcy, *Leonard 4271* (BM, G, N), *4586* (N), *4683* (N); *Buch 1571* (B); *Picarda 1532* (B); *Christ 1681* (B). Morne de la Hotte, *Ekman 474* (B, S). Fonds Varettes, *Leonard 3770* (BM, N), *3965* (N, Ph), *3970* (N). Marmelade, *Leonard 8315* (N). Kalacroix, *Leonard 7961* (N). Goave, *Ekman H7309* (N). Massif de la Selle, *Bailey 204* (N).

DOMINICAN REPUBLIC: *Poiteau* (Gen, P, type). Barahona, *Fuertes 598* (B), *1200* (B). Constanza, *Türckheim 3254* (B). Sabaneta, *Valeur 515* (N).

JAMAICA: Mandeville, *Crawford 691* (Ph). Hollymount, *Maxon & Killip 419* (N), *494* (F, G, N, Y), *536* (N); *Maxon 10422* (N); *Perkins 415* (B), *664* (B). Kingston(?), *Hansen* (Cop). Port Royal Mountains, *Maxon 8725* (N). Catadupa, *Maxon & Killip 1548* (N, P, Y). Bath, *Boughton 26* (Roch), *29* (Roch). Trafalgar River, *Maxon & Killip 807* (N). Blue Mountains, *Rothrock 344* (F); *Nichols 38* (F, G); *Fawcett* (J); *Harris 7684* (F), *7707* (J); *Hart 656* (N).

PUERTO RICO: Adjuntas, *Britton & Shafer 2019* (N, Y). Maricao, *Britton, Britton & Hess 2607* (N, Y); *Sintenis 342* (B, BM, Bo, G, Gen, N, S); *F. H. Sargent 599* (N). Aibonito, *Wetmore 209* (N); *Sintenis 2634* (G), *2701* (B, N), *2968* (B, P). Guajataca, *Sintenis 6204* (B). Lares, *Britton, Britton & Hess 2756* (N, Y); *Sintenis 6103* (B). Mt. Morales, *Britton & Cowell 450* (N, Y). Caguas, *Britton & Cowell 1398* (N, Y); *Cook & Collins 440* (N). Dominguito, *Cowles 141* (N). Mayagüez, *Heller 4475* (B, F, G, HV, N); *F. H. Sargent 322* (N). Guayama, *Stahl 1102* (B).

COLOMBIA: El Valle: Miraflores, east of Palmira, 2,100 meters, *Killip 6135* (N, type of *P. miraflorensis*).

Because of the compound inflorescence this species has generally been associated with *P. multiflora*, and placed in the group *Polyanthea*. The peduncles bear several flowers, though in the type specimens of *P. miraflorensis* and *P. isotriloba* they are predominantly 1-flowered.

Passiflora pannosa, based upon a West Indian specimen, was described as apetalous; other characters given in the description, especially the 3-cleft bracts, indicate that it is identical with *P. sexflora*, the minute petals having been overlooked. The name *P. capsularis* var. *geminiflora* was given by De Candolle to a Jamaican plant mentioned by Smith in Rees' *Cyclopedia* under *P. capsularis*

as having the peduncles in pairs. This evidently is also *P. sexflora*. *Passiflora triflora*, likewise described from a Jamaican specimen, was said to have glabrescent leaves, peduncles in pairs, each with three flowers, and bractlets awl-shaped or 3-cleft. This species was maintained as valid by Fawcett and Rendle in the *Flora of Jamaica*, though they also listed the name in the synonymy of *P. sexflora*.

The occurrence of this plant in Colombia represents an interesting extension of range. Lemaire based *P. floribunda* upon a plant grown in Europe from seeds brought by Linden from New Granada, but as Linden also collected in Cuba and some of his plants are known to have been wrongly labeled, it has been thought that the New Granada record was erroneous. Among the unpublished Mutis paintings at Madrid is one which clearly depicts *P. sexflora*, but unfortunately there is no precise locality in Colombia associated with this plate. The plant from the Central Cordillera of Colombia, described by me as *P. miraflorensis*, I now think is indistinguishable from *P. sexflora*, though nearly all its peduncles bear but a single flower.

In the absence of flowers or fruit, *P. sexflora* is easily confused with *P. capsularis* and *P. rubra*. The middle leaf lobe is usually much more developed than in these two.

LOCAL NAMES: "Granada" (Mexico; Guatemala); "pasionaria de cerca" (Cuba).

39. **Passiflora allantophylla** Mast. Bot. Gaz. 16: 7. 1891.

Plant glabrous throughout; stem angulate, sulcate-striate, finely setulose; tendrils axillary; stipules setaceous, 1.5 to 2 mm. long, deciduous; petioles 0.5 to 1 cm. long, glandless; leaves 2 to 2.5 cm. long, 4 to 5 cm. wide, 2-lobed to the middle (lobes rounded, mucronulate, somewhat divergent), entire, rotund at base, the lower surface bearing 1 or 2 pairs of ocellae; peduncles slender, equaling or slightly exceeding the petioles, 3-flowered, the pedicels very slender, as long, or nearly as long, as the peduncles; bracts setaceous, deciduous; flowers 1 to 1.2 cm. wide, white; sepals oblong, 5 to 7 mm. long, 2 to 2.5 mm. wide, obtuse; petals hyaline, slightly shorter than the sepals; corona filaments in a single series, about 2 mm. long, capitellate, yellow at apex, purplish at base; operculum membranous, slightly plicate, the margin fimbrillate, incurved; limen narrowly annular, fleshy; ovary subglobose, glabrous.

TYPE LOCALITY: Santa Rosa, Baja Verapaz, Guatemala.

DISTRIBUTION: Known only from the type locality, in northern Guatemala.

GUATEMALA: Baja Verapaz: Santa Rosa, 1,500 meters, *Türckheim* (*J. D. Smith 1425;* K, type, N).

This species is known only from a single collection. It is a very delicate plant, noteworthy for the 3-flowered peduncles. The foliage is suggestive of *P. mexicana* and *P. ornithoura*, though the species is not closely related to either.

40. **Passiflora saxicola** Gontsch. Bull. Jard. Bot. Princ. U. S. S. R. 26: 559. 1927.

Plant glabrous throughout; stipules setaceous, 1 to 2 mm. long; petioles slender, up to 7 mm. long, glandless; leaves bilobed (lobes broadly obovate, rounded, wide-spreading, hence the blade transversely oblong), up to 1.8 cm. along midnerve and 6 cm. wide, 3-nerved; peduncles up to 7 mm. long, 2–3-flowered, the pedicels slender, 6 to 10 mm. long; bracts subulate, about 1 mm. long; flowers yellowish white; calyx tube broadly campanulate; sepals oblong, about 1.2 cm. long, 6 mm. wide, obtuse; petals oblong, about half as long as the sepals; corona filaments in 2 series, the outer filiform, 7 to 8 mm. long, dilated at middle, the inner filiform, about 3 mm. long; operculum membranous, 2.5 mm. high, plicate above middle, short-denticulate; limen a thick, crispate ridge; ovary ovoid.

TYPE LOCALITY: Near Ilheos, State of Bahia, Brazil, the type collected by L. Riedel (*No. 789*).

DISTRIBUTION: Known only from the type specimen.

This recently proposed species I know only from description. The author likens it to *P. Maximiliana* (*P. misera*) but notes a difference in the shape of the leaves, the color of the flowers, and the "petaloid" outer corona filaments. To the first of these differentiating characters I do not attach much importance, as the leaves of *P. misera* are quite variable, certain forms agreeing well with the above description, and the color of the flowers ranges from yellowish white to greenish white. The dilated outer corona filaments and, more especially, the compound inflorescence, not stressed by Gontscharow, suggest that a wholly different species is represented. In the present treatment this comes nearest *P. allantophylla* and *P. sexflora*.

Series 4. Apetalae

41. **Passiflora apetala** Killip, Journ. Wash. Acad. Sci. 12: 255. 1922.

Plant glabrous throughout; stem angulate, grooved; stipules setaceous, 2 to 4 mm. long; petioles 1.5 to 3 cm. long, glandless;

leaves broadly cuneate in outline, 3 to 7 cm. long, 2 to 6 cm. wide, bilobate (lobes subapproximate, one-half to quite as long as the undivided portion of blade, obtuse, mucronate), at base subrotund or cuneate, strongly 3-nerved, membranaceous; peduncles in pairs, slender, 2 cm. long; bracts setaceous, 2 to 3 mm. long, deciduous; flowers small, 1.2 to 1.8 cm. wide; sepals oblanceolate, 6 mm. long, 2.5 mm. wide, yellowish green, inconspicuously nerved; petals none; corona filaments in a single series, filiform, 2.5 mm. long; operculum membranaceous, plicate, strongly incurved about base of gynophore; limen annular; ovary depressed-globose, 1 mm. in diameter, glabrous; fruit black, globose, 8 to 10 mm. in diameter; seeds broadly ovate, 2.5 mm. long, 2 mm. wide, transversely sulcate with 6 or 7 nearly parallel ridges.

TYPE LOCALITY: Cerro de Escazú, Costa Rica, 1,000 meters altitude.

ILLUSTRATION: Gard. Chron. 4: 420. 1875.

DISTRIBUTION: Mountains of central Costa Rica, between 1,000 and 2,200 meters altitude; also in western Panama.

COSTA RICA: *Endres* (V); *Pittier 4366* (Brux, V). Viento Fresco, *Standley & Torres 47906* (N). Cerro de Las Lajas, Heredia, *Standley & Valerio 51417* (N). Cerro de Escazú, *Pittier* (or *Tonduz?*) *13043* (Bo, F, K, N, type). Copey, *Tonduz* (or *Pittier?*) *11739* (B, Brux, F, N, V). San José, *J. D. Smith 6530* (BM, K, N). Santa María de Dota, *Standley 41607* (N), *42945* (N); *Tonduz 17462* (B, G). Cartago, *Oersted 4086* (Cop), *4140* (Cop).

PANAMA: Chiriquí: Monte Lirio, *Seibert 160* (N).

This is the only member of *Plectostemma* section *Decaloba* definitely known to be without petals. The foliage is much like that of *P. ornithoura*, but the species differs not only in the absence of petals but in longer and narrower sepals and in much longer, filiform—not linear—filaments.

42. **Passiflora Poeppigii** Mast. Trans. Linn. Soc. 27: 630. 1871; in Mart. Fl. Bras. 13, pt. 1: 546. 1872.

Passiflora lunata Juss. sensu Poepp. & Endl. Nov. Gen. & Sp. 2: 58. *pl. 178*. 1835. Not *P. lunata* Juss.

Plant glabrous throughout; stem slender, subangular, compressed; stipules subulate-falcate, 1.5 mm. long; petioles slender, up to 3 cm. long, glandless; leaves transversely oblong in general outline, 1.5 to 5 cm. along midnerve, 2 to 6.5 cm. along lateral nerves, 3.5 to

10 cm. wide, repand-truncate at upper margin, truncate and subemarginate at base, membranous; peduncles solitary or in pairs, 4 to 6 cm. long, very slender; bracts setaceous, 1 to 1.5 mm. long, borne near middle of peduncle; flowers 1.5 to 2 cm. wide; calyx tube campanulate; sepals broadly ovate, about 1.5 cm. long and 1 cm. wide, subacute, white; petals none(?); corona filaments in 2 series, the outer filiform, 7 to 8 mm. long, the inner narrowly linear, about 2 mm. long, capitate; operculum plicate, incurved; ovary ovoid.

TYPE LOCALITY: Province of Mainas, Peru.

ILLUSTRATION: Poepp. & Endl. Nov. Gen. & Sp. 2: *pl. 178.*

DISTRIBUTION: Known only from the type specimen.

PERU: Loreto: Yurimaguas, *Poeppig D.2170* (V, type).

The only other apetalous species of *Decaloba* is *P. apetala*, of Costa Rica and western Panama, but in no other respect do the two species seem closely related. The coronal structure and the general outline of the leaves suggest a close affinity with *P. misera* and *P. leptoclada*. I am not fully satisfied that the plant is apetalous. Dr. Rechinger, of the Naturhistorisches Museum, Vienna, has generously lent me a part of the type material, but it is impossible, because of the condition of the flowers, to verify the author's statement that they are without petals. If petals actually are present, the species should be placed next to *P. misera*, from which it would be differentiated by the broadly ovate rather than linear-oblong sepals, and the shorter filaments of the outer corona.

Series 5. **Luteae**

43. **Passiflora lutea** L. Sp. Pl. 958. 1753.

Granadilla lutea Medic. Malvenfam. 96. 1787.

Plant glabrous or sparingly pilosellous; stipules setaceous, 3 to 5 mm. long, deciduous; petioles up to 5 cm. long, glandless; leaves usually much wider than long, 3 to 7 (or occasionally up to 9) cm. long, 4 to 10 (or up to 15) cm. wide, 3-lobed usually from one-quarter to one-third the length (lobes broadly triangular-ovate, rounded or obtuse, rarely acutish, often mucronulate), rounded, subcordate, or subtruncate at base, 3-nerved, closely and usually inconspicuously reticulate-veined, membranous, rarely subcoriaceous; peduncles solitary or in pairs, 1.5 to 4 cm. long, very slender; bracts none; flowers 1 to 2 cm. wide; calyx tube patelliform; sepals linear-oblong, 5 to 10 mm. long, 2 to 3 mm. wide, obtuse, pale green; petals linear, 3 to 5 mm. long, about 1 mm. wide, acutish, white; corona filaments

in 2 series, the outer ones about 30, narrowly linear or almost filiform, 5 to 10 mm. long, radiate, greenish white, the inner narrowly liguliform, 1.5 to 2.5 mm. long, slightly thickened toward apex, white above, pink-tinged at base; operculum membranous, plicate, erect, white at margin, pale pink at base; nectar ring a low ridge; limen cupuliform, fleshy; ovary obovoid, glabrous; fruit globose-ovoid, about 1.5 cm. long and 1 cm. in diameter; seeds broadly obcordate or suborbicular, 4.5 to 5 mm. long, 3 mm. wide, transversely sulcate with 6 or 7 grooves, the ridges strongly rugulose.

TYPE LOCALITY: Virginia.

ILLUSTRATIONS: Jacq. Icon. Pl. Rar. 3: *pl. 607;* Cav. Diss. 10: *pl. 267;* Bot. Reg. 1: *pl. 79;* Britton & Brown, Illustr. Fl. Northeast. U. S. 2: 457; ed. 2, 2: 565.

DISTRIBUTION: Pennsylvania to Illinois and Kansas, south to Florida and Texas.

PENNSYLVANIA: Allegheny County, *Koenig* in 1895 (N).

OHIO: Chillicothe, *Safford 425* (N). Dayton, *Morgan* in 1879 (N). Cincinnati, *Lloyd* in 1882 (N).

INDIANA: Haubstadt, *Schuermeier* in 1897 (N).

ILLINOIS: Marion County, *Bebb* in 1860 (F).

MISSOURI: Allenton, *Letterman* (N). Carondelet, *Eggert* in 1877 (N). Springfield, *Standley 8939* (N).

MARYLAND: Great Falls, *House 497* (N); *Leonard & Killip 687* (N). Glen Echo, *Tidestrom* (N). Plummer's Island, *Killip 13107, 13742* (N).

DISTRICT OF COLUMBIA: *Vasey* (N); *Ward* (N); *Steele* (Cop, N); *Kearney* (N); *Chickering* (N).

VIRGINIA: Cultivated at Uppsala (Linn, type); *Muhlenberg* (BW). Four Mile Run, *Pollard* in 1895 (N). Luray, *Tidestrom 6723* (N). Altavista, *Fauntleroy 674* (N). Churchview, *Leonard & Killip 549* (N). Ocean View, *Kearney 1217* (N).

WEST VIRGINIA: Baileysville, *Morris 1208* (N). Eagle Mountain, *Steele 14* (N). Grafton, *J. D. Smith* in 1879 (N).

NORTH CAROLINA: Church's Island, *McAtee 1215* (N). Columbus, *Townsend* in 1897 (N). Biltmore, *Biltmore Herbarium 739* (N). Smith's Island, *Biltmore Herbarium 739b* (N).

SOUTH CAROLINA: Bradley, *Davis 1994* (N). Clemson College, *Anderson 1586* (N). Charleston, *Curtiss 6528* (N).

GEORGIA: Union Point, *Biltmore Herbarium 739d* (N). Rome, *Biltmore Herbarium 739e* (N). Oconee River, *J. D. Smith* in 1884 (N). Lookout Mountain, *Ruth 409* (N). Chickamauga, *Harper 113* (N).

FLORIDA: *Chapman 869* (N). Lake City, *Nash 2155* (N).

KENTUCKY: Bardwell, *McFarland 257* (N). Marion County, *Williamson* in 1875 (N).

TENNESSEE: Wolf Creek, *Kearney 729* (N). Nashville, *Svenson 349* (N). Chester County, *Bain 109* (N).

ALABAMA: Mobile, *Mohr* in 1878 (N). Agricola, *Pollard & Maxon 106* (N). Guntersville, *Biltmore Herbarium 739a* (N).

MISSISSIPPI: Ocean Springs, *Skehan* in 1895 (N). Biloxi, *Tracy 5075* (N). Rockport, *F. Cook* in 1925 (N).

ARKANSAS: Little Rock, *Hasse* in 1886 (N). Gum Springs, *E. J. Palmer 10553* (N). Hot Springs, *Runyon 1492* (N).

LOUISIANA: Covington, *Arsène 11681* (N), *11753* (N). Catalpa, *Pennell 4300* (Penn).

OKLAHOMA: Lenapah, *G. W. Stevens 2638* (N). Fort Cobb, *Palmer 144* (N).

TEXAS: Weatherford, *Tracy 8296* (N). San Antonio, *E. D. Schulz 785* (N). Houston, *Tharp 2448* (N); *E. Hall 229* (N). El Jardin, *Runyon 521* (N). San Augustine, *Crockett* (N). Fort Smith, *Bigelow* (N). Denison, *Biltmore Herbarium 739f* (N). Temple, *Wolff 2297* (N). Bachman Dam, *Lundell & Lundell 7042* (N).

Passiflora lutea and *P. incarnata*, the only species widely distributed in the United States, are represented in herbaria by a very large number of specimens. In both cases only a few are cited in the present publication, these being selected to show the distribution by states.

This and the two following species are bractless, but because of the rugulose ridges of the seeds and the small, subglobose fruit they clearly should be placed in the section *Decaloba* rather than *Xerogona*, which likewise is bractless. The peduncles of these three species are very slender, the flowers small, and the leaves broader than long and trilobed above the middle. *Passiflora lutea* is distinguished from *P. filipes* by the thicker filaments of the outer corona, and by thicker, more deeply lobed leaves, the reticulate venation of which usually is quite evident. *Wolff 2297*, from central Texas, is an aberrant form, with deeply lobed leaves, the lobes being lanceolate

or oblong-lanceolate, 6 to 9 cm. long along the nerves and 1.5 to 3 cm. wide, the distance between the extremities of the lateral lobes reaching 15 cm.

44. **Passiflora filipes** Benth. Pl. Hartw. 118. 1843.

Decaloba filipes M. Roemer, Fam. Nat. Syn. 2: 161. 1846.

Plant slender, glabrous throughout; stem terete; stipules linear-lanceolate, 2 to 4 mm. long, falcate, acuminate; petioles 1 to 2 cm. long, glandless; leaves 1 to 4 cm. long, 2 to 6 cm. wide, 3-lobed at apex (lobes nearly equal, obtuse or slightly acuminate), rounded at base, 3-nerved, dark green above, slightly glaucescent beneath; peduncles very slender, 4 to 6 cm. long, diverging at nearly right angles to the stem; bracts none; flowers small, 8 to 15 mm. wide, yellowish green or greenish white; sepals lanceolate or linear-lanceolate, 6 to 9 mm. long, 2 mm. wide, acutish; petals narrowly linear, 3 to 4 mm. long, 1.5 mm. wide; corona filaments in 2 series, filiform, the outer equaling the petals, the inner shorter; operculum membranous, plicate, incurved; limen annular, close to the gynophore; ovary globose, glabrous; fruit globose, 5 to 7 mm. in diameter; seeds slightly flattened, obovate or obcordate, 4 mm. long, 2.5 to 3 mm. wide, transversely sulcate with 3 or 4 broken ridges.

TYPE LOCALITY: "In woods near Guayaquil, Ecuador," but almost certainly Mexico.

DISTRIBUTION: Southern Texas to Nicaragua; also in Venezuela; tropical zone, up to 900 meters altitude.

TEXAS: Cameron County: Olmito, *Rose & Russell 24171* (N). Brownsville, *Rose 18109* (N); *Clover 1603* (Mich), *1700* (Mich). South Point, *Hotchkiss 4847* (N).

MEXICO: *Hartweg 661* (Gen, K, type, P, V, Y); *Haenke 872* (Pr).—Tamaulipas: Victoria, *Berlandier 2265* (BM, Bo, G, K, N), *3046* (Gen, K). La Morita, *Bartlett 10777* (Mich).—Sinaloa: Culiacán, *Brandegee* in 1904 (Cal).—Jalisco: Quimixto, *Mexia 1235* (BM, Gen, N).—Colima: Manzanillo, *Ferris 6228* (N).—Veracruz: Lacoba, *Liebmann 4115* (Cop). Mirador, *Liebmann 4143* (Cop). Zacuapan, *Purpus 2295* (Cal, G, N, Y). Baños del Carrizal, *Purpus 6235* (Cal, F, N, Y).—Oaxaca: Tomellín Cañon, *Rose 11323* (N, Y). Puerto Angel, *Reko 3486* (N). Oaxaca, *Galeotti 3656* (Brux, Gen, K).

GUATEMALA: Chocón, *Watson 244b* (G).

HONDURAS: San Pedro Sula, *Türckheim 5247* (N).

SALVADOR: Ahuachapán, *Standley 19887* (N, Y), *20024* (G, N); *Padilla 4* (N). Sonsonate, *Calderón 2222* (N).

NICARAGUA: *Chaves 332* (N). Granada, *Lévy 392* (Cop, Bo, Gen, P). Masaya, *Maxon 7704* (N).

VENEZUELA: *Moritz (or Otto?) 2001* (BM, V); *Karsten* (V). Orinoco River, *Humboldt & Bonpland* (BW).—Yaracuy: Iboa, *Pittier 13095* (B, F, Gen, Mo, N, Y).

There is probably an error in the locality given for Hartweg's type specimen. *Passiflora filipes* is a fairly common species in Mexico, but there is no record of it in Ecuador other than that of the Hartweg collection. Labels on the specimens of *Hartweg 661* in the New York Botanical Garden and the Muséum d'Histoire Naturelle, Paris, both read "Guayaquil." In the specimen at Geneva the word "Mexico," printed on the label, is crossed out and "Guayaquil" written in. Hartweg collected in both Mexico and in Ecuador, and at about the same period.

There is not a vestige of a bract on any of the numerous specimens examined, even those with very young peduncles, of the three species, *P. filipes*, *P. Pavonis*, and *P. lutea*. Both *P. filipes* and *P. Pavonis* were described as having small, deciduous bracts, but I believe their presence was assumed.

LOCAL NAMES: "Pasiflorita" (Nicaragua); "sandillita de pájaro" (Salvador).

45. **Passiflora Pavonis** Mast. Journ. Bot. Brit. & For. 21: 35. 1883.

Stem angled, grooved, glabrous or sparsely pubescent, the branches densely pubescent; stipules narrowly falcate, 3 mm. long, acuminate, deciduous; petioles filiform, 0.5 to 1.5 cm. long, densely puberulent, glandless; leaves 1 to 3 cm. long, 2 to 5 cm. wide, 3-lobed at apex (lobes nearly equal in length, rounded or truncate, mucronate, the middle the broader), rounded at base, strongly 3–5-nerved, entire, dark green and glabrous above, beneath paler and appressed-hirtellous on the nerves; peduncles in pairs, slender, 1 to 2.5 cm. long, puberulent; bracts none; flowers 1.5 to 2 cm. wide, yellowish green; calyx tube setulose, ventricose at base; sepals linear-lanceolate, 10 to 12 mm. long, 2 mm. wide, acuminate, obscurely 3-nerved, minutely puberulent without, glabrous within; petals 3 to 4 mm. long, barely 1.5 mm. wide, acute; corona filaments in 2 series, capillary, the outer ones one-third to one-half the length of the petals, reflexed, the inner about 2 mm. long, erect; operculum membranous, plicate, the margin

fimbrillate; limen annular; ovary globose or broadly ovoid, setulose; fruit globose, 6 to 8 mm. in diameter, glabrescent; seeds broadly ovate, compressed, 2.5 mm. long, 2 mm. wide, transversely rugose with 6 rounded, conspicuously rugulose ridges.

TYPE LOCALITY: Mexico.

DISTRIBUTION: Mountains of central Mexico.

MEXICO: *Sessé & Mociño* (BM, type, cited as "Pavón," Bo).—Morelos: Cuernavaca, 2,000 meters, *Pringle 6826* (B, BM, Bo, Brux, Cal, F, G, Gen, K, Minn, Mo, N, P, Ph, S, V, Y). Tepoxtlán, *Pringle 9207* (G, N).—Mexico: Taquesquipán, *Hinton 816* (N).

The minute inner series of corona filaments evidently was overlooked by Masters, as he describes the faucial corona as "filis 1-seriatis." This species is readily distinguished from *P. filipes* by its pubescence, shorter peduncles, larger flowers, and truncate middle leaf lobe.

Series 6. **Organenses**

46. **Passiflora salvadorensis** Donn. Smith, Bot. Gaz. 42: 297. 1906.
"*Passiflora subtriangularis alfa*" Calderón, Passifl. Dilob. Salv. 15. pl. opp. p. 20.

Plant glabrous throughout; stem subtriangular, striate; stipules filiform; petioles 3 to 5 cm. long, glandless; leaves 6 to 10 cm. long (along lateral nerves), 6.5 to 8.5 cm. wide (or the lower up to 18 cm. long, 12 cm. wide), bilobed one-third to two-thirds their length (lobes oblong, lance-oblong, or ovate-oblong, rounded or acutish, suberect, the sinus often very narrow), rounded or truncate at base but often abruptly narrowed to petiole, dark green and often lustrous above, paler and dull beneath, membranous; peduncles in pairs, up to 5 cm. long, slender; bracts subulate, about 4 mm. long, borne slightly below middle of peduncle; flowers 2.5 to 3 cm. wide; sepals linear, 1.5 to 2 cm. long, 5 mm. wide or less, green; petals similar to the sepals, about 5 mm. long and 1.5 mm. wide, white or light yellow-green; corona filaments in a single series, filiform, about 1 cm. long, purple or purplish red; operculum membranous, 3 to 4 mm. high, erect or very slightly inclined toward the gynophore, pinkish purple, slightly plicate, denticulate; limen annular, 1 to 2 mm. high; ovary subglobose; fruit globose, about 1 cm. in diameter; seeds obovate, 2 to 3 mm. long, 1.5 to 2 mm. wide, transversely sulcate with about 6 strongly rugulose ridges.

TYPE LOCALITY: San Salvador, Salvador.

ILLUSTRATION: Calderón, Passifl. Dilob. Salv. opp. p. 20.

DISTRIBUTION: Salvador, 650 to 1,400 meters altitude.

SALVADOR: Ahuachapán, *Padilla 478* (N). San Salvador, *Velasco (J. D. Smith 8887;* N, type); *Standley 19279* (G, N); *Calderón 810* (G, N). Cerro del Guayabal, *Calderón 2004* (N).

In this species and the following the operculum is longer than in other species of *Decaloba*, and is folded very slightly and at the apex only, thus suggesting *Murucuja* and *Granadilla*, section *Kermesinae*. Likewise, the limen is more elevated than it normally is in *Decaloba*, and the stamen filaments are unusually long and very slender.

The leaves of both *P. salvadorensis* and *P. jorullensis* are quite similar to those of *P. ornithoura* and *P. mexicana*.

LOCAL NAME: "Calzoncillo."

47. **Passiflora jorullensis** HBK. Nov. Gen. & Sp. 2: 133. 1818.

Passiflora trisetosa DC. Prodr. 3: 324. 1828.

Cieca trisetosa M. Roemer, Fam. Nat. Syn. 2: 147. 1846.

Decaloba jorullensis M. Roemer, Fam. Nat. Syn. 2: 160. 1846.

Passiflora Medusae Lemaire, Fl. des Serres 4: 375. 1848.

Passiflora punctata L. sensu Sessé & Moc. Pl. Nov. Hisp. 155. 1887. Not *P. punctata* L.

Stem subtriangular, densely puberulent; stipules setaceous, 2 to 3 mm. long; petioles 3 to 4 cm. long, strongly grooved, puberulent, glandless; leaves bilobed or trilobed one-third their length (length along midnerve 2 to 8 cm., along lateral nerves 3 to 8.5 cm.; lobes erect, rounded or subacute, mucronulate, 3 to 8 cm. wide), truncate or subcuneate at base, 3-nerved, reticulate-veined (nerves and veins conspicuous), minutely puberulent above, glabrous beneath; peduncles in pairs, 2.5 to 3 cm. long; bracts setaceous, scattered; flowers 3.5 to 4 cm. wide, "orange"; sepals linear-lanceolate, 15 mm. long, 2 to 3 mm. wide, acute, glabrous; petals obscure, slender, linear, 3 to 4 mm. long, less than 1 mm. wide, obtuse; corona filaments in a single series, narrowly ligulate, 8 mm. long, 0.5 to 0.6 mm. wide; operculum membranous, about 3 mm. high, slightly plicate above, flat below (margin slightly arcuate, minutely denticulate), at first orange then pink, becoming brown when dry; limen membranous, cup-shaped, 1.5 mm. high, arising at base of gynophore, entire; ovary globose, minutely hispidulous, becoming glabrate; fruit globose, about 1 cm. in diameter, glabrous, black, lustrous; seeds obovate,

about 3 mm. long and 2 mm. wide, transversely sulcate, with 5 rugulose ridges.

TYPE LOCALITY: Mt. Jorullo, Mexico.

ILLUSTRATIONS: Fl. des Serres 5: *pl. 528;* Bot. Mag. 79: *pl. 4752;* A. DC. Dess. Pl. Mex. 1: *pl. 29.*

DISTRIBUTION: Mountains of central and southern Mexico, between 1,300 and 1,800 meters altitude.

MEXICO: *Sessé & Mociño 4459* (Bo, Gen, Ma, type of *P. trisetosa*), *4461,* in part (Ma).—Mexico: Puerto Salitre, *Hinton 1794* (K, N). Timbres, *Hinton 2139* (K, N). Temascaltepec, *Hinton 2407* (K).—Michoacán: Mt. Jorullo, *Bonpland* (B, type). Uruapan, *Pringle 13673* (G).—Colima: Hacienda San Antonio, *Reko 4822* (N).—Oaxaca: *Ghiesbreght 301* (P).—Chiapas: Siltepec, *Matuda 928* (Mich).

This is a rare species, with a coronal structure like that of *P. salvadorensis* and with leaves suggestive of forms of *P. mexicana.*

Passiflora trisetosa was briefly described in the *Prodromus* and later figured by A. De Candolle, and until recently I had considered it identical with the plant described later as *P. Helleri* Peyr. and *P. fuscinata* Mast. *Sessé & Mociño 4459,* in the Madrid Herbarium, clearly is the original of the drawing of *P. trisetosa* and therefore the type. The flowers have the prominent, erect, very slightly plicate corona characteristic of *P. jorullensis* and not of *P. Helleri,* and it appears that *P. trisetosa* is a synonym of *P. jorullensis.* De Candolle described the flowers as apetalous and Masters therefore placed the species in *Cieca.* The type specimen bears small, very inconspicuous petals, this being one of many instances of petals having been overlooked by early authors.

48. **Passiflora ornithoura** Mast. Bot. Gaz. 16: 8. 1891.

Passiflora dicthophylla Mast. Bot. Gaz. 16: 8. 1891.

Plant glabrous throughout; stem flattened, striate; stipules setaceous, 3 mm. long, deciduous; petioles 1.5 to 2.5 cm. long, glandless; leaves bilobed to below middle, often nearly to base (lobes narrowly linear to broadly ovate, 3 to 10 cm. long, 0.5 to 2 cm. wide, acute or obtuse, mucronulate), cuneate or subrotund at base, 3-nerved, membranous, above dark green with frequently a pale streak along the midnerve, beneath paler or somewhat glaucous; peduncles in pairs, 1 to 2 cm. long, very slender; bracts setaceous, about 1.5 mm. long; flowers about 1.5 cm. wide; sepals oblong, 7 to 8 mm. long, 4 mm. wide, obtuse; petals linear, 5 mm. long, 2.5 mm.

wide, hyaline, white; corona filaments in a single series, linear-clavate, barely 2 mm. long; operculum membranous, 1.5 mm. high, closely plicate, fimbrillate, incurved; limen annular, fleshy; ovary globose; fruit globose, 6 to 8 mm. in diameter, purple; seeds strongly flattened, broadly ovate, about 2 mm. long, 2 mm. wide, transversely sulcate with about 6 conspicuously rugulose ridges.

TYPE LOCALITY: Dueñas, Department of Zacatepéquez, Guatemala.

DISTRIBUTION: Mountains of western Central America, from Guatemala to Costa Rica, between 1,300 and 1,900 meters altitude.

GUATEMALA: Río Ojas, *Lehmann XVIII* (Bo).—Sacatepéquez: Dueñas, *J. D. Smith 2136* (B, Bo, Gen, G, K, type, N, P), *2143* (B, Bo, G, K, type of *P. dicthophylla*, N, P, Ph, Y). Capetillo, *J. D. Smith 2492* (F, G, K, N, Ph). Acatepeque, *Heyde & Lux 4481* (G, N).—Sololá: San Lucas, *Kellerman 5830* (N).

SALVADOR: *Calderón 2317* (N). Sierra de Apaneca, Ahuachapán, *Standley 20138* (N, Y); *Padilla 164* (N), *165* (N), *477* (N).

COSTA RICA: *Endres 70* (BM, K); *Hoffmann 458* (B). Aserrí, San José, *Standley 34146* (N).

The leaf lobes of this species vary greatly in length, breadth, and degree of divergence, some of the forms resembling *P. mexicana*, *P. jorullensis*, *P. salvadorensis*, and *P. apetala*. It should be noted that these five species all have very similar leaves, and usually can be distinguished only by the flowers.

LOCAL NAME: "Calzoncillo."

49. **Passiflora Dictamo** DC. Prodr. 3: 324. 1828.

Cieca Dictamo M. Roemer, Fam. Nat. Syn. 2: 146. 1846.

Stem slender, subangulate, sulcate, minutely pubescent, especially toward the end of the branches; stipules linear-falcate, 2 mm. long, deciduous; petioles slender, 5 to 8 mm. long, glandless; leaves bilobate (or rarely with an obsolescent truncate lobe in the sinus; lobes rounded or acutish, emarginate or apiculate, the distance from the base of the blade to the apex of the lobes ranging from 1 to 4 cm., from the base of the blade to the sinus 0.8 to 2 cm.), rounded or subemarginate at base, strongly 3-nerved, without ocellae beneath, membranous or subcoriaceous, glabrous throughout or sparsely pubescent on the upper surface of nerves; peduncles in pairs, filiform, about 1 cm. long, articulate 1 mm. below the apex, bearing a single setaceous, deciduous bract at the point of articulation and a minute, 3-toothed bract near the middle; flowers 1 to 1.5 cm. wide, yellowish

green(?); sepals oblong, 3 mm. wide, strongly 3-nerved, glabrous; petals glabrous, hyaline, shorter than the sepals; corona filaments in a single series, filiform-clavate, about 3 mm. long; operculum membranous, plicate; limen annular; ovary globose, glabrous; fruit about 1 cm. in diameter.

TYPE LOCALITY: Mexico (based upon a Sessé and Mociño drawing).

ILLUSTRATION: A. DC. Dess. Fl. Mex. 1: *pl. 28.*

DISTRIBUTION: Central Mexico.

MEXICO: Puebla: Cerro de Mazize, *Purpus* in 1907 (Cal). Tultitlanapa, *Purpus 3546* (Cal).

I am referring these specimens to *P. Dictamo* with much hesitation, for that species may be only a synonym of *P. biflora.* It was briefly described in the *Prodromus,* and was placed in the apetalous section; nor are petals shown in the illustration later published by A. De Candolle. However, as indicated elsewhere, inconspicuous petals were frequently overlooked, and perhaps they were in this case. The petals of these two Purpus specimens are much less conspicuous than those of *P. biflora.*

LOCAL NAME: "Dictamo."

50. **Passiflora Helleri** Peyr. Linnaea 30: 54. 1859.

Passiflora fuscinata Mast. in Mart. Fl. Bras. 13, pt. 1: 551. 1872.

Stem subangular, deeply grooved, glabrate or finely pubescent; stipules linear-subulate, about 3 mm. long, 0.8 mm. wide; petioles 2 to 3 cm. long, glandless; leaves ovate-oblong or orbicular in general outline, 3.5 to 8 cm. long, 3 to 7 cm. wide, 3-lobed at apex (lobes acute or obtuse, mucronulate, the middle lobe usually the largest), rounded or subcuneate at base, 3-nerved, reticulate-veined, ocellate beneath, subcoriaceous, glabrate, or minutely puberulent on the nerves beneath; peduncles 2 to 3.5 cm. long, articulate just below flower base; bracts setaceous, 1.5 to 2.5 mm. long, deciduous; flowers 3 to 4 cm. wide; sepals oblong-lanceolate, 1.3 to 1.5 cm. long, about 0.6 cm. wide, obtuse, green without, greenish white within; petals narrowly oblong, about 1 cm. long, 0.4 cm. wide, white, pink-tinged; corona filaments 40 to 45, in a single series, 5 to 7 mm. long, dilated and slightly geniculate on the inner margin just above middle, green and purple-dotted at margin without, purple at margin within; operculum membranous, plicate, white, the margin strongly incurved,

minutely serrulate or fimbrillate; limen annular; ovary ovoid, minutely pilosulous; fruit globose, glabrate.

TYPE LOCALITY: Mirador, State of Veracruz, Mexico.

DISTRIBUTION: Veracruz, Mexico and northern Guatemala, between 1,200 and 1,500 meters altitude.

MEXICO: Veracruz: Mirador, *Liebmann 4098, Passiflora* No. 19 (N, type collection of *P. fuscinata*); *C. Heller 160* (P, V, type); *Purpus 13064* (F, Mich). Zacuapan, *Purpus 3765* (Cal), *10670* (BM, N), *11094* (Mich, N, V); without number, grown at Washington, D.C. (N, S).

GUATEMALA: Alta Verapaz: Cobán, *Türckheim II.1618* (N). Pansamalá, *Türckheim 875* (N).—Baja Verapaz: Purulá, *Türckheim II.1724* (N).

In my report on the Passifloraceae of the Mayan region (Carnegie Inst. Wash. Publ. 461: 310. 1936) I wrongly associated this species with *P. trisetosa* DC., briefly described in the *Prodromus* and later figured by A. De Candolle. Having subsequently seen a Sessé and Mociño specimen that clearly is the original of the drawing, I realize that *P. trisetosa* is in reality the same as *P. jorullensis* HBK.

The detailed description of the flower is based upon living material in the United States Department of Agriculture, grown from seeds sent by Dr. C. A. Purpus.

51. **Passiflora stenosepala** Killip, nom. nov.

Passiflora Swartzii Mast. in Mart. Fl. Bras. 13, pt. 1: 556. 1872, as to description only.

Plant glabrous throughout except ovary; stipules setaceous, 2 to 3 mm. long, soon deciduous; petioles 2 to 5.5 cm. long, slender, glandless; leaves transversely ovate, 3 to 5 cm. along midnerve, 3.5 to 6 cm. along lateral nerves, 5 to 8 cm. at greatest width, truncate and shallowly 3-lobed at upper margin (lobes usually mucronulate), rounded or truncate at base, ocellate, membranous, pale beneath; peduncles solitary or in pairs, up to 3 cm. long, slender, articulate just below apex; bracts setaceous, 1 to 1.5 mm. long, borne on upper third of peduncle; flowers up to 7 cm. wide; sepals linear, 2.5 to 3 cm. long, 3 to 4 mm. wide, obtuse; petals linear, 1.5 to 2 cm. long, obtuse, yellowish white; corona filaments in a single series, subdolabriform, about 5 mm. long and 1 mm. wide, yellowish green at apex, purplish otherwise; operculum plicate, minutely denticulate;

limen annular, 1 mm. high; gynophore slender, nearly 2 cm. long; ovary ovoid, cano-villosulous.

TYPE LOCALITY: Dominica.

DISTRIBUTION: Known only from the island of Dominica.

DOMINICA: *Imray 270* (B, K, type); *Nichols 42* (K).

As already pointed out in connection with *P. penduliflora*, the plant described by Swartz as "*P. rotundifolia* L." belongs to that species. De Candolle's name, *P. rotundifolia* var. *Swartzii*, and Roemer's *Decaloba Swartzii*, both of which were based solely on Swartz's description without additional material being at hand, are likewise synonyms of *P. penduliflora*. Masters, in transferring the specific name from *Decaloba* to *Passiflora*, wrongly associated with it *Imray 270*, and the description which he formulated of *P. Swartzii* was based solely on this Imray specimen. Under the rules of nomenclature, the name *P. Swartzii* becomes also a synonym of *P. penduliflora*, so that a new name is necessary for this plant.

Although the leaves of *P. stenosepala* are very similar to those of *P. Andersonii* and forms of *P. Pohlii*, its relationship is clearly with *P. organensis*, both having a single series of broad corona filaments and a pubescent ovary. From *P. organensis* the present species is readily distinguished by the larger flowers with very narrow sepals and petals, the long, slender gynophore, and the shape of the leaves.

52. **Passiflora organensis** Gardn. London Journ. Bot. 4: 104. 1845.

(?)*Passiflora rubra* Vell. Fl. Flumin. 9: *pl. 77*. 1827, figure only. Not *P. rubra* L.

(?)*Passiflora pertusa* Vell. Fl. Flumin. 9: *pl. 79*. 1827, figure only.

Passiflora porophylla Vell. Fl. Flumin. 9: *pl. 82*. 1827, figure only.

Cieca porophylla M. Roemer, Fam. Nat. Syn. 2: 147. 1846.

Decaloba rufa M. Roemer, Fam. Nat. Syn. 2: 159. 1846.

Decaloba organensis M. Roemer, Fam. Nat. Syn. 2: 160. 1846.

Passiflora organensis var. *marmorata* Mast. Gard. Chron. 1869: 1158. 1869.

Passiflora maculifolia Mast. Gard. Chron. III. 32: 334. 1902.

Plant essentially glabrous throughout; stem subangular, compressed; stipules linear-subulate, 2 to 3 mm. long, subfalcate; petioles 1.5 to 3 cm. long, slender, glandless; leaves bilobed (rarely trilobed; lobation variable, the proportion between midnerve and lateral nerves ranging from 4.5:6 to 2:10, the lobes broadly ovate to lanceo-

late, 1.5 to 3 cm. wide, obtuse or acute, mucronulate, the sinus wanting or lunate), rounded at base, 3–5-nerved (often white-fasciate along nerves above), often glaucescent or reddish beneath, membranous or subcoriaceous; peduncles in pairs, up to 4 cm. long; bracts setaceous, 2 to 3 mm. long, borne near middle of peduncle; flowers up to 5 cm. wide; calyx broadly patelliform, 1 to 1.5 cm. wide; sepals oblong-lanceolate, about 1.5 cm. long and 5 mm. wide, obtuse, reflexed, cream-colored to dull purple; petals ovate-lanceolate, about half as long as sepals; corona filaments in a single series, strongly dolabriform, about 5 mm. long, 1.5 to 2 mm. wide, deep purple; operculum closely plicate, incurved, about 4 mm. high, pale at base, pink at margin; limen a low ridge midway between operculum and gynophore; gynophore 5 to 7 mm. long; ovary obovoid, glabrous or pubescent; fruit globose, 1 to 1.5 cm. in diameter; seeds ovate, about 4.5 mm. long, 2.5 mm. wide, transversely 7–9-sulcate.

TYPE LOCALITY: Organ Mountains, Brazil.

ILLUSTRATIONS: Mart. Fl. Bras. 13, pt. 1: *pl. 111;* Vell. Fl. Flumin. 9: *pl. 77*(?), *79*(?), *82;* Gard. Chron. III. 32: 334. 1902.

DISTRIBUTION: Eastern Brazil, from Minas Geraes to Paraná; low mountains, up to 1,000 meters altitude.

BRITISH GUIANA: Botanic Gardens, cultivated, *Jenman 4221* (BG).

BRAZIL: *Blanchet 156* (BM, Gen); *Glaziou 12472* (Cop).—Minas Geraes: *Ule 2568* (N). Serra de Caldas, *Regnell III.638* (S), *4501* (S). Serra do Cipó, *Chase 9201* (N). Viçosa, *Chase 9451* (N), *9461* (N).—Espiritu Santo: Serra de Santa Barbara de Caparoá, *Mexia* (Cal).—Rio de Janeiro: Rio de Janeiro, *Guillemin 629* (Gen); *De Moura 506* (B); *Döllinger* (B); *Kuhlmann 15792* (S, Ut). Pedra da Gavea, *L. B. Smith 2170* (G). Organ Mountains, *Gardner 428* (type; BM, K); *Miers* (BM, type of *P. organensis* var. *marmorensis*), *3471* (K); *Sello 2127* (B). Patmeiras, *Ule 4987* (B). Cantagallo, *Peckolt 212* (V).—São Paulo: *Gaudichaud 990* (P); *Brade 7393* (B). Encontro, *Brade 5526* (S). Cidade Jardim, *L. B. Smith & Kuhlmann* (*Smith 1805;* N). Santos, *Lindberg 360* (Brux).—Paraná: Serrinha, *Dusén 3772* (N, S). Volta Grande, *Dusén 9899* (S). Jaguariahyva, *Dusén* in 1911 (S). Alexandra, *Dusén 11472* (Gen, S). Serra do Mar, *Dusén 14392* (G).

Considerable variation in leaf shape is noted in the specimens here cited. The ovary is glabrous in most of the specimens, but in a few it is pubescent. The leaves are minutely pilosulous in *Ule 2568* and *Glaziou 18254*. The flowers range from cream-colored to dull

purple. However, there does not appear to be any correlation of these differences. *Passiflora maculifolia* is doubtless one of these forms of *P. organensis*. The illustration of *P. organensis* in the *Flora Brasiliensis* and that of *P. maculifolia* in the *Gardener's Chronicle* are remarkably similar; both show broad, hatchet-shaped corona filaments and recurved petals. Leaves obtained from what is said to be the type specimen of *P. maculifolia*, growing at Kew, almost exactly match *Dusén 14392*. *Passiflora maculifolia* is stated to have been "introduced from Venezuela with *Cattleya Mossiae*." No Venezuelan specimens of this relationship have been examined, and records of this nature are always open to question.

Passiflora organensis is readily recognized by the single row of deep violet or purple, hatchet-shaped corona filaments. The foliage is easily confused with that of *P. punctata* or *P. Pohlii*.

Series 7. **Miserae**

53. **Passiflora leptoclada** Harms, Notizbl. Bot. Gart. Berlin 9: 979. 1926.

Plant glabrous throughout except ovary; stem slender, striate; stipules linear-setaceous, about 2 mm. long; petioles 1 to 2.5 cm. long, glandless; leaves transversely elliptic or transversely oblong in general outline, truncate or shortly 3-lobed at apex, 1.5 to 4 cm. along midnerve, 2.5 to 4 cm. along lateral nerves, 4 to 7 cm. wide (lobes rounded or obtuse, mucronulate, the middle lobe up to 1 cm. long or almost wanting), subtruncate, cordulate, or rounded at base, ocellate, membranous; peduncles in pairs, 2 to 3 cm. long; bracts subulate, 1 to 1.5 mm. long; flowers up to 3 cm. wide; sepals narrowly oblong, 1 to 1.2 cm. long, 2 to 3 mm. wide, obtuse; petals similar to sepals, about 7 mm. long, 1 to 1.5 mm. wide; corona filaments in 2 series, the outer filiform, subequal to the sepals, the inner linear, 3 to 4 mm. long, broadly capitate and emarginate; operculum membranous, closely plicate, denticulate; limen annular; ovary ovoid, densely cano-tomentulous; fruit globose, about 1.5 cm. in diameter, pilosulous; seeds transversely sulcate.

TYPE LOCALITY: San Isidro, Loreto, Peru.

DISTRIBUTION: Amazon basin of northern Peru.

PERU: Loreto: San Isidro, *Tessmann 4969* (B, type). Soledad, *Killip & Smith 29775* (N). Mishuyacu, *Killip & Smith 29989* (N, Y). La Victoria, *L. Williams 2737* (F, N). Puerto Arturo, *L. Williams 5252* (F).

This species is perhaps only another variant of *P. misera*, for the flower structure is almost identical and in shape the leaves closely approximate forms of *P. misera*. However, the ovary is very densely pubescent, and as this character usually serves to distinguish species of *Plectostemma*, I am maintaining *P. leptoclada* as a full species.

In the type and the Killip and Smith specimens the middle lobe is developed; in *Williams 5252* it is almost absent.

54. **Passiflora misera** HBK. Nov. Gen. & Sp. 2: 136. 1817.

Passiflora Maximiliana Bory, Ann. Gén. Sci. Phys. Brux. 2: 149. *pl. 24*. 1819.

Passiflora vespertilio Ker, Bot. Reg. 7: *pl. 597*. 1821. Not *P. vespertilio* L.

Passiflora discolor Link & Otto, Icon. Pl. Select. 13: *pl. 5*. 1828.

Passiflora retusa Hook. Bot. Misc. 3: 325. 1833.

Cieca discolor M. Roemer, Fam. Nat. Syn. 2: 140. 1846.

Cieca misera M. Roemer, Fam. Nat. Syn. 2: 140. 1846.

Passiflora microcarpa Mast. in Mart. Fl. Bras. 13, pt. 1: 556, 593. 1872.

Passiflora Maximiliana var. *acutiloba* Chod. Bull. Herb. Boiss. 7, App. 1: 74. 1899.

Passiflora Maximiliana var. *retusa* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 62. 1903.

Passiflora Maximiliana var. *expansa* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 62. 1903.

Passiflora laticaulis Killip, Journ. Wash. Acad. Sci. 14: 110. 1924.

Passiflora translinearis Rusby, Ann. N. Y. Bot. Gard. 7: 309. 1927, as to foliage.

Passiflora longilobis Hoehne, Linh. Telegr. Matto Grosso Annex. 5: Bot. pt. 1: 71. *pl. 63*. 1910.

Stem angulate or strongly compressed, striate, glabrous or finely puberulous, sometimes scabrid; stipules setaceous to narrowly linear, 2 to 3.5 mm. long, falcate; petioles 1 to 3.5 cm. long, glandless, glabrous or finely puberulous; leaves 2-lobed (lobes widely divergent, sometimes to an angle of nearly 90 degrees from the midnerve, the leaves thus being almost transversely oblong or transversely linear-oblong, the lobes rounded at apex, rarely acutish, sometimes retuse, occasionally a small intermediate lobe present), 0.5 to 2.5 cm. long (midnerve), 4 to 13 cm. wide (between apices of lateral lobes),

cordulate or subtruncate at base, 3-nerved (a pair of rather prominent secondary nerves just below upper margin), inconspicuously reticulate-veined, membranous, ocellate beneath, glabrous or minutely pilosulous; peduncles solitary, rarely in pairs, slender, 1.5 to 10 cm. long; bracts setaceous, 3 to 5 mm. long, borne near apex of peduncle; flowers 2.5 to 4 cm. wide; sepals lance-oblong to linear-oblong, 10 to 18 mm. long, 3 to 5 mm. wide, obtuse, green and usually puberulous without, white within; petals linear-oblong, 8 to 13 mm. long, 2 to 4 mm. wide, obtuse, white; corona filaments in 2 series, the outer filiform, 10 to 15 mm. long, attenuate at apex, purplish (or white?), the inner linear, 3 to 4 mm. long, about 0.8 mm. wide, broadly capitate and often slightly emarginate; operculum membranous, closely plicate, incurved, minutely fimbrillate at margin; limen annular; ovary ovoid, glabrous; fruit globose, rarely ovoid, 5 to 13 mm. in diameter; seeds narrowly ovate, about 3.5 mm. long and 2 mm. wide, transversely sulcate, the ridges about 10.

TYPE LOCALITY: Between Turbaco and Cartagena, Colombia.

ILLUSTRATIONS: Link & Otto, Icon. Pl. Select. *pl. 5;* Bot. Reg. 7: *pl. 597;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 24;* Lodd. Bot. Cab. 6: *pl. 565;* Illust. Hort. 16: 2; Linh. Telegr. Matto Grosso Annex. 5: Bot. pt. 1: *pl. 63.* 1910.

DISTRIBUTION: Panama; northern and eastern South America to northern Argentina; at low elevations.

PANAMA: *Hayes 356* (BM, K). Bailemona, *Stevens 687* (N).—Canal Zone: Monte Lirio, *Killip 12187* (N); *Maxon 6841* (N). Trinidad River, *Pittier 3998* (N). Mindi, *Cowell 169* (N, Y). Barro Colorado Island, *Kenoyer 456* (N); *Bailey & Bailey 258* (N); *Chickering 52* (Mich).

SURINAM: *Tulleken 256* (Leid). Corantijne, *Stahel & Gonggrijp 112* (Ut).

BRITISH GUIANA: *Schomburgk 818* (B, Bo, K, N, Ut). Rapanuni River, *Jenman 5539* (K). *British Guiana Herb. 136* (BG).

VENEZUELA: Federal District: Silla de Caracas, *Ernst* in 1880 (S).—Trujillo: La Ceiba, *Pittier 10871* (G, N).

COLOMBIA: Magdalena Valley, *Dawe 954* (K).—Magdalena: Santa Marta, *H. H. Smith 1591* (A, B, Brux, CM, F, G, Gen, K, Ma, N, Ph, S, Ut, Y); *Pérez 4924* (HNC).—Bolívar: Turbaco, *Humboldt & Bonpland* (BW, P, type).—Cundinamarca: Susumuco, 1,200 meters, *Pennell 1723* (Y, type of *P. laticaulis*).

BOLIVIA: Beni: Lake Rogagua, 300 meters, *Rusby* (*Mulford Biol. Expl. 1619*, in part; Y, type of *P. translinearis*).—El Chaco: Río Pilcomayo, *Fries 1621* (S).

BRAZIL: *Sello 337* (B), *668* (B), *2480* (B, type of *P. microcarpa*), *2488* (B).—Amazonas: Rio Branco, *Ule 7853* (B, Go, K, N). Ega, *Poeppig 2618* (V). Gapo, *Spruce 1629* (K).—Pará: Tapaná, *Killip & Smith 30360* (N). Bõa Vista, *Dahlgren & Sella 62* (N). Mexiana Santa Maria, *Guedes 2428* (Go).—Ceará: *Gardner 818* (Gen). Campo Grande, *Löfgren 285* (S).—Pernambuco: Tapera, *Pickel 2544* (N).—Minas Geraes: Lagoa Santa, *Warming 1158* (Cop). Serra da Mantiqueira, *Glaziou 10871a* (P).—Rio de Janeiro: Rio de Janeiro, *Glaziou 12742* (B, Gen, P). Cabo Frio, *Ule 4733* (B).—Matto Grosso: Santa Anna de Chapada, *Sladen 428* (BM). Porto Esperanza, Rio Paraguay, *Chase 11092* (N). Cuyabá, *Malme* in 1902 (S), in 1903 (S). Corumbá, *Robert 782* (K).—São Paulo: *Puiggari* in 1885 (P); *Perdonnet 262* (Bo), *263* (Bo); *Burchell 2457* (K). Agua Branca, *Brade 7395* (B). Sorocaba, *Löfgren 277* (Cop, N).—Paraná: Tarma, *Dusén 1171a* (G), in 1904 (N). Serrinha, *Dusén 3085* (N, S), *7357* (BM, Gen, K, N, Ph, S).—Rio Grande do Sul: *Thering 82* (B). Navegantes, *Reineck & Czermak 60* (B, Bo, Go, P, S, V). Porto Alegre, *Czermak 153* (Gen, K); *Malme 546* (S). Cachoeira, *Malme 494* (S). Excolonia, *Schwarzer* in 1900 (S); *Lindman A1139* (S). Santo Angelo, *Lindman 1139* (N).

PARAGUAY: Igueri, *Hassler 1418* (BM, Bo, K). Piragu, *Balansa 2205* (Bo, Gen, K). Olympia, *Anisits 2081* (S). Villa Rica, *Jörgensen 3788* (N). Estancia Armonía, *Anisits 1863* (S). San Bernardino, *Ostén 8923* (S); *Hassler 3512* (B, Bo, Gen, K, P, V). Cerros de Tobaty, *Hassler 6413* (B, BM, Bo, type of *P. Maximiliana* var. *retusa*, Gen, K, P, V). Cordillera de Altos, *Hassler 12373* (B, BM, Cop, G, Gen, K, N), *12607* (B, BM, Cop, G, Gen, K, N); *Fiebrig 426b* (B), *608* (B, F, Gen, K). Concepción, *Hassler 7333* (A, B, BM, Bo, type of *P. Maximiliana* var. *expansa*, Gen, K, P, V). Gran Chaco, *Hassler 2927* (B, BM, G, Gen, K, P, V). Caraguatày, *Hassler 1418a* (Bo, type of *P. Maximiliana* var. *acutiloba*). Pilcomayo, *Rojas 107* (B); *Morong 896* (Y), *1032* (BM, CM, F, G, K, N, Y). Tobaty, *Archer 4850* (N).

ARGENTINA: Corrientes: *Bonpland* (P).—Formosa: *Jörgensen 2618* (G, N).—Chaco: Fontana, *Meyer 160* (N).—Misiones: La Granja, *Ekman 1513* (S). Posadas, *Vattuone & Bianchi 87* (N).—Entre Ríos: Paraná Delta, *Cabrera 254a* (F, N).—Buenos Aires: *Tweedie 179* (BM).

Nearly all the material here cited has been distributed as *P. Maximiliana* or *P. microcarpa*, the name *P. misera* having been overlooked or the identity of that species not having been well established. The type specimen of *P. misera* in the Humboldt Herbarium is in a fine state of preservation, and there is little doubt that the plant of Panama and northwestern South America is identical with it. Farther to the east and south in South America the plants usually have shorter peduncles and the venation of the leaves is more prominent, but some material from southern Brazil (*Malme 494, Lindman A1139*) has peduncles fully as long as those of typical *P. misera* of Colombia, and a similar obscure venation. Throughout the range, the shape of the leaves shows about the same variation. Flowers of the specimens examined are uniform, characterized by broadly capitate inner filaments of the corona. This species is thus distinguished from *P. biflora* and *P. vespertilio*, forms of which resemble it in leaf shape.

It is difficult to understand the reason for the continued maintenance of *P. microcarpa* as distinct from "*P. Maximiliana*," both names being used by recent students of the genus in revising herbarium material, apparently without much discrimination. When developed, the fruit varies from 5 to 13 mm. in diameter, not an important difference within a species of *Passiflora*.

Passiflora laticaulis appears to be an aberrant form with abnormally developed stems. The type sheet of *P. translinearis* consists of a mounted specimen with a single attached flower in bud, its peduncle being much elongate and bearing two setaceous bracts, all representing a plant certainly referable to *P. misera*, although the leaf lobes are rather narrower than usual. In a pocket are two detached flowers and a bract that clearly belong to a plant of *P. quadriglandulosa*, a species of the subgenus *Distephana*, remote from *Plectostemma*. These detached parts and the mounted stems and leaves form the basis of the description of *P. translinearis*, the single attached bud and adjacent bracts having been overlooked. Though this confusion may have occurred after collecting, the error might happen in collecting vines in the tropics, where often two species of a genus are intertwined and parts of each taken for a single plant. The foliage of *P. longilobis* is like that of *P. translinearis*.

LOCAL NAMES: "Noenonjinopo," "sjimio" (Surinam).

55. **Passiflora amalocarpa** Barb. Rodr. Vellosia 1: 25. 1891; 3, pt. 1: *pl. 12*. 1891.

Passiflora cabedelensis Barb. Rodr. Vellosia 1: 30. 1891; 3, pt. 2: *pl. 13c*. 1891.

Plant glabrous throughout; stem subangular, compressed, striate, slightly scabrid at angles; stipules narrowly linear, 2 to 3 mm. long, subfalcate; petioles 1 to 2.5 cm. long, glandless; leaves transversely oblong or transversely linear-oblong in general outline, 3-lobed or occasionally truncate at upper margin, 1 to 4 cm. along midnerve, 3.5 to 6.5 cm. along lateral nerves, 7 to 12 cm. between apices of lateral lobes (middle lobe usually well developed, 1 to 3 cm. wide, truncate or rounded, the lateral lobes obtuse or rounded), cordulate at base, membranous, ocellate; peduncles solitary, up to 5 cm. long; bracts linear-setaceous, about 2 mm. long, borne near apex of peduncle; flowers 3.5 to 4 cm. wide; sepals linear-lanceolate, about 1.5 cm. long and 4 mm. wide at base, obtuse; petals linear, 5 to 7 mm. long and 1 mm. wide; corona filaments in 2 series, the outer filiform, subequal to petals, the inner narrowly linear, 2 to 3 mm. long, capitate and emarginate; operculum membranous, closely plicate, minutely fimbrillate; limen annular; ovary fusiform; fruit fusiform, 3.5 to 4 cm. long, 1 to 1.5 cm. in diameter; seeds transversely sulcate with about 7 ridges.

TYPE LOCALITY: Manaos, State of Amazonas, Brazil (type collected by Barbosa Rodriguez).

ILLUSTRATIONS: Vellosia 3, pt. 1: *pl. 12;* 3, pt. 2: *pl. 13c.*

DISTRIBUTION: Amazonian Brazil and Peru.

PERU: Loreto: Lower Río Nanay, *L. Williams 526* (F, N).

In leaf shape and coronal structure this species rather closely resembles *P. misera* and perhaps should be treated as a variant of that. The fruit, however, is fusiform, much like that of *P. tenella,* which has a dissimilar flower structure.

56. **Passiflora tricuspis** Mast. in Mart. Fl. Bras. 13, pt. 1: 587. 1872.

Passiflora tricuspis var. *minor* S. Moore, Trans. Linn. Soc. II. 4: 365. 1895.

Passiflora tricuspis var. *brevifolia* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 61. 1904.

Stem angulate, often flexuous, compressed, glabrous, longitudinally sulcate, the ridges strongly scabrellous; stipules setaceous, 2 to 4 mm. long, at length deciduous; petioles 1 to 1.5 cm. long, glandless, finely pilosulous or nearly glabrous; leaves variable (1) deeply bilobed, the lobes divaricate, the sinus lunate, bearing a cusp at the end of the midnerve or with an obsolete intermediate

lobe, 1.5 to 4 cm. along midnerve, 3 to 6 cm. along lateral nerves, 5 to 10 cm. wide between apices of lobes, or (2) 3-lobed from a third to two-thirds the length of the blade, the lobes subequal or usually the middle lobe the longer, the lateral lobes ascending, 5 to 13 cm. along midnerve, 4.5 to 11 cm. along lateral nerves, 3 to 7 cm. wide below lobation (lobes lanceolate to linear-oblong, 1 to 2.5 cm. wide, obtuse or acuminate, mucronulate), rounded or emarginate at base, entire, 3-nerved, reticulate-veined, subcoriaceous or coriaceous, glabrous or minutely puberulous, sublustrous or dull above, finely pilosulous beneath; peduncles 2 to 3 cm. long, articulate near apex; bracts setaceous, 2 to 3 mm. long, deciduous; flowers 3 to 4.5 cm. wide; calyx broadly patelliform about 1.2 cm. wide; sepals lance-oblong, 4 to 5 mm. wide, obtuse, white; petals oblong, scarcely half as long as sepals, white; corona filaments yellowish, in 2 series, the outer narrowly liguliform, about 1.5 cm. long, 1-nerved, the inner narrowly linear, 2 to 2.5 mm. long, capitate; operculum borne close to corona, membranous, plicate, about 2 mm. high, undulate and minutely fimbrillate at margin; limen a narrow ring borne about halfway between operculum and base of gynophore; ovary subglobose, glabrous; fruit globose, about 1.5 cm. in diameter, glabrous; seeds ovate, about 3 mm. long, 2 mm. wide, transversely 7-sulcate.

TYPE LOCALITY: Serra de Araripe, Piauhy, Brazil.

DISTRIBUTION: Amazonian basin of Peru and Bolivia to eastern Brazil and Paraguay, between 500 and 1,100 meters altitude.

PERU: Loreto: Río Ucayali, *Tessmann 3194* (B).—Junín: La Merced, *Killip & Smith 23474* (N); *Macbride 5436* (F, N).

BOLIVIA: Challana, *Troll 2238* (B).—Beni: Reyes, *Cárdenas* (*Mulford Biol. Expl. 1359;* N, Y). Río Ivón, *White* (*Mulford Biol. Expl. 2371;* Y).—La Paz: Mapiri, *Rusby 496* (Y), *828a* (Y); *G. H. H. Tate 495* (Y); *Buchtien 1675* (N); *R. S. Williams 789* (BM, N, Y). Coroico, *Buchtien 6003* (N).—Cochabamba: Incacorral, *Steinbach 9692* (B).—Santa Cruz: Misiones Guarayos, *Werdermann 2616* (B). Buenavista, *Steinbach 2206* (B).

BRAZIL: "Brazil Occid.," *Tamberlik* (V).—Amazonas: *Ule 5831* (B).—Pará: Guaramiranga, *Ducke 1343* (Go).—Piauhy: Serra de Araripe, *Gardner 1631* (K, type).—Goyaz: *Burchell 6988* (K).—Matto Grosso: *Moore 579* (B, BM, Y), *793* (BM, type of *P. tricuspis* var. *minor*). Campo Grande, *Chase 10802* (N). Corumbão, *Malme 2752* (S). Palmeiras, *Lindman A2751* (S); *Weddell 3025* (P); *Hoehne*

4941 (N).—São Paulo: Santa Anna, *Brade 6094* (S). Araraquara, *Hoehne 10641* (B).

PARAGUAY: Santa María, *Anisits 2064* (S). Río Apa, *Hassler 4131* (B), *7875* (A, B, BM, Bo, Gen, K, P, V). Sierra de Amambay, *Hassler 10649* (B, BM).

The species of this immediate relationship, *P. misera*, *P. tricuspis*, and *P. trifasciata*, are all characterized by relatively broad inner corona filaments, which are strongly dilated at the apex and often slightly lobed.

The structure of the flowers of all the specimens cited above is uniform, but the shape of the leaves varies from deeply 3-lobed, with suberect lobes, to 2-lobed, with divaricate lobes, similar to that seen in *P. misera*. Numerous examples are found, however, with leaves intermediate between the extremes, and it is impossible to recognize more than a single species on the basis of foliage. In *Hassler 7875* the lower leaves are identical with those of type material of *P. tricuspis*, but the upper ones are very similar to those of *Hoehne 4941* and to those of *P. misera*. This collection was cited by Chodat as *P. organensis*, but the coronal structure is different. *Steinbach 2206* also has both forms of leaves. This species is probably most readily distinguished from its allies by its strongly roughened stem.

Much of the material here cited as *P. tricuspis*, especially that representing the form with bilobate leaves, has been variously determined as "*P. organensis*," "*P. punctata*," and "*P. Maximiliana*." Of these the first two species differ markedly in the shape of the inner corona filaments. In *P. misera* (*P. Maximiliana*) the leaf lobes are blunter and more widely divergent.

57. **Passiflora trifasciata** Lemaire, Illus. Hort. 15: *pl. 544*. 1868.

Plant glabrous throughout; stem angulate, striate, smooth or sometimes asperate on the edges; stipules subulate, 2 to 4 mm. long, subfalcate; petioles up to 5 cm. long, glandless; leaves 5 to 10 cm. along midnerve, 4 to 10 cm. along lateral nerves, 4 to 10 cm. wide, 3-lobed about a third their length (lobes deltoid, 2 to 3.5 cm. wide, acute or obtusish, the lateral usually ascending), cordulate at base, membranous, dull, above dark green, mottled with white or yellowish green along nerves, beneath reddish or violet; peduncles up to 3 cm. long, slender; bracts setaceous, 2 mm. long; flowers 2.5 to 3.5 cm. wide; calyx tube broadly campanulate; sepals oblong, about 15 mm. long, 5 mm. wide, obtuse, light green; petals linear, about 10 mm. long, 2.5 to 3 mm. wide, light green; corona filaments in 2 series, the

outer terete, 8 to 10 mm. long, the inner linear-clavate, about 3 mm. long; operculum plicate, incurved, white, pink-tinged at margin; limen thick, lobulate; ovary subglobose, glabrous; fruit globose, 1.5 to 2.5 cm. in diameter, glaucous; seeds narrowly oblong-ovoid, 4 mm. long, 2 mm. wide, transversely 6-sulcate.

TYPE LOCALITY: Peru or Brazil (type based on a cultivated specimen).

ILLUSTRATION: Illus. Hort. 15: *pl. 544.*

DISTRIBUTION: Amazonian Peru; Brazil(?).

CUBA: Santa Clara: Soledad, introduced from Hope Garden, Jamaica, *Walsingham* in 1936 (A).

PERU: San Martín: Lamas, 840 meters, *L. Williams 6327* (F).—Loreto: Yurimaguas, 135 meters, *Killip & Smith 27819* (N), *28069* (N, Y), *28297* (F, N, Y), *28318* (F, N, Y); *L. Williams 5075* (F), *5213* (F). Balsapuerto, *Killip & Smith 28412* (F, N, Y).

BRAZIL: *Schott* in 1886, cultivated at Washington, D.C. (N).

The strongly mottled leaves of this species are conspicuous in the dense forests of the upper Amazonian region. The plant is doubtless closely related to *P. tricuspis*, but is readily distinguished by the coloring, texture, and shape of the leaves.

Passiflora trifasciata has been introduced into European horticulture. Indeed, the species has been known only from horticultural material until recently collected in the Huallaga Valley in northern Peru, where it appeared to be native.

Series 8. **Punctatae**

58. **Passiflora vespertilio** L. Sp. Pl. 957. 1753.

Granadilla vespertilio Moench, Meth. Pl. Suppl. 14. 1802.
Passiflora hemicycla G. F. W. Mey. Prim. Fl. Esseq. 225. 1818.
Passiflora geminiflora DC. Prodr. 3: 323. 1828.
Passiflora surinamensis Miq. Linnaea 18: 363. 1844.
Decaloba vespertilio M. Roemer, Fam. Nat. Syn. 2: 155. 1846.
Decaloba surinamensis M. Roemer, Fam. Nat. Syn. 2: 158. 1846.
Decaloba hemicycla M. Roemer, Fam. Nat. Syn. 2: 160. 1846.
Decaloba geminiflora M. Roemer, Fam. Nat. Syn. 2: 164. 1846.
(?)*Passiflora europhylla* Mast. Gard. Chron. 28: 350. 1900.

Stem angulate, compressed, striate, often flexuous, glabrous or sparingly puberulent; stipules narrowly linear-setaceous, about 5 mm. long, 0.5 mm. wide; petioles up to 1.5 cm. long, glandless; leaves

2–3-lobed (lobes divaricate, acuminate, the sinus shallowly lunate or wanting, i.e., upper margin of leaf truncate, often undulate), variable in shape, ranging from 6.5 cm. long and 9 cm. wide to 3 cm. long and 10 cm. wide, rounded or subtruncate at base, 3-nerved, ocellate, coriaceous, glabrous and lustrous above, glabrous or slightly puberulent beneath; peduncles solitary or in pairs, 0.5 to 1.5 cm. long, articulate near middle; bracts setaceous, about 3 mm. long, borne below middle of peduncle; flowers up to 5 cm. wide; sepals broadly lance-oblong, 1.5 to 2 cm. long, 7 to 8 mm. wide at base, obtuse, subcoriaceous, yellowish green; petals oblong, 1 to 1.2 cm. long, about 4 mm. wide at base, obtuse, membranous, yellowish green; corona filaments in 2 series, the outer narrowly liguliform, yellowish green, united at base into a broad, greenish white membrane, the free filaments 1 to 1.5 cm. long, the inner filaments capillary, 3 to 4 mm. long, arising about 2 mm. from the free portion of the outer series, greenish white; operculum membranous, closely plicate, lobulate, white; limen annular; gynophore purple; ovary ovoid, glabrous; fruit subglobose, 1 to 1.5 cm. in diameter; seeds obovate, about 4 mm. long and 2 mm. wide, transversely sulcate.

TYPE LOCALITY: "America."

ILLUSTRATIONS: Amoen. Acad. 1: *pl. 10, f. 11;* Dillen. Hort. Elth. *pl. 137;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 22, f. 8, 9;* Cav. Diss. 10: *pl. 271;* Engl. & Prantl, Pflanzenfam. ed. 2, 21: 495. *f. 229A.*

DISTRIBUTION: Trinidad, Guianas, and lower Amazon, Brazil; Amazonian basin of Peru and Bolivia; at low elevations.

TRINIDAD: Aripo Estate, *Trinidad Herb. 2592* (N, T). Chatham, *Trinidad Herb. 8465* (T).

FRENCH GUIANA: *Gabriel* in 1802 (Gen). Karouay, *Sagot* (P, S).

SURINAM: *Hering* (Ph); *Hostmann 1095* (BM, Gen, P, V); *Hostmann & Kappler 478a* (P, S); *Kappler 142* (S); *Focke 535* (Ut), *1246* (Ut). Saramacca River, *Pulle 497* (Ut). Lower Surinam River, *Soeprata 35F* (Ut). Paramaribo, *Went 568* (Ut); *Wullschlägel 214* (Brux); *Splitgerber 603* (Leid, N, Ph, V). Upper Nickerie River, *B. W. 1036* (Ut). Gonini River, *Gonggrijp 14* (Ut). Matappi, Corantijne River, *Gonggrijp 11* (Ut). Tapanahoni River, *Versteeg 708* (Ut). Brownsberg, *Zaandam 6893* (Ut).

BRITISH GUIANA: *Schomburgk 154* (B), *664* (Gen, N, V). "Coast lands," *Jenman 2052* (BG), *5073* (Y). Barina River, *Jenman 6997* (BG); *De la Cruz 3411* (N, Y). Demerera Gardens, *Jenman 4222* (N). Rockstone, *Gleason 863* (N, Y). Essequibo River, *Gleason 908* (Y).

Tumatumari, *Gleason 371* (N, Y). Mazaruni River, *Graham 96* (CM). Mt. Everard, *De la Cruz 1332* (F, N, Y).

PERU: Loreto: Río Nanay, *L. Williams 1201* (F). Iquitos, *L. Williams 8180* (F).

BOLIVIA: Beni: Río Ivón, *Cárdenas* (*Mulford Biol. Expl. 2074;* N, Y).

BRAZIL: *Collector not given* (P, type of *P. geminiflora*).—Pará: Ilha do Mosqueiro, *Killip & Smith 30664* (N, Y). Pará, *Moss 37* (N); *Ducke 3314* (Go), *3859* (Go). Jububu, *Huber 2816* (Go). Ilha do Maranhão, *Ducke 528* (Go). Arumatheua, *Snethlage 8199* (Go).—Bahia: *Blanchet 156* (Gen).

Passiflora vespertilio and *P. urnaefolia* are characterized by an unusual structure of the outer rank of the corona. The filaments are united at the base into a distinct membrane, upon which, at some distance from the margin, the very slender inner filaments are borne.

The leaves of *P. vespertilio* are of two main forms: those with the upper margin an almost straight line (represented by Linnaeus' drawing in the *Amoenitates*) and those with the upper margin of the lobes a curved line, meeting at the middle to form a shallow sinus (represented by the only specimen in Linnaeus' herbarium in 1753). Among more recent collections the former is duplicated by *Schomburgk 664*, the latter by *Moss 37*.

Masters cites specimens from central Brazil as *P. vespertilio*, but the occurrence of true *P. vespertilio* in Brazil south of the Amazon basin and Bahia is doubtful, the specimens referred here being better placed in *P. Pohlii*, *P. ichthyura*, *P. organensis*, or *P. tricuspis*. The leaves of each of these species are variable; on the other hand, forms of species which are quite distinct in coronal structure have very similar foliage.

Passiflora europhylla was described from a living plant, originating in British Guiana, of which apparently no herbarium specimen was made. Masters' description is indefinite in certain important details, and the species is doubtfully included here.

The fruit of *P. vespertilio* is eaten in Surinam.

LOCAL NAMES: "Noenonjinopo," "jorka markoesa," "blaka markoesa," "anjoemara koesjilikodo" (Surinam).

59. **Passiflora urnaefolia** Rusby, Mem. Torrey Club 6: 42. 1896.

Stem glabrous or finely pilosulous; stipules narrowly linear, 2 to 3 mm. long, falcate; petioles slender, up to 3 cm. long, glandless;

leaves subtruncately 2–3-lobed, 2 to 8.5 cm. along midnerve, 3 to 10 cm. along lateral nerves, 3 to 10 cm. wide (middle lobe, if present, reduced, the lateral lobes ascending, acute or rounded), rounded or subtruncate at base, membranous, glabrescent above, glaucescent and finely and sparingly pilosulous beneath; peduncles slender, 2.5 to 4 cm. long; bracts setaceous, 2 to 3 mm. long; sepals oblong, about 1.5 cm. long and 5 mm. wide, obtuse, light blue(?); petals lanceolate, 8 to 10 mm. long, 3 to 4 mm. wide; corona filaments in 2 series, the outer narrowly linear (appearing filiform when dry), united at base into a broad membrane, the free portion 5 to 10 mm. long, the inner filaments capillary, 1 to 2.5 mm. long, borne on the membrane about 2 mm. from the margin; operculum close to the preceding series, slightly plicate, erect, the margin minutely fimbrillate; limen annular, fleshy; ovary ovoid, glabrous; fruit globose, 1.2 to 1.5 cm. in diameter, glabrous or pilosulous; seeds ovoid, transversely sulcate, the ridges 4 or 5.

TYPE LOCALITY: Mapiri, Bolivia.

DISTRIBUTION: Central Bolivia to northwestern Argentina.

BOLIVIA: La Paz: Mapiri, *Bang 1517* (B, BM, Bo, F, G, Gen, K, Minn, N, Ph, Y, type). Soratá, *Mandon 610* (P).—Chuquisacá: *Fiebrig 2683* (B).

ARGENTINA: Salta: Los Baños, *Venturi 9322* (BM, N). San Pedrito, *Meyer 910* (N).—Tucumán: Quebrada de Lules, 700 meters, *Venturi 967* (G, N).

Closely related to *P. vespertilio*, this species differs in its much longer peduncles, shorter outer corona filaments, and differently shaped, thinner leaves.

60. **Passiflora tuberosa** Jacq. Pl. Hort. Schönbr. 4: 49. *pl. 496.* 1804.

Passiflora punctata Lodd. Bot. Cab. 2: *pl. 101.* 1818. Not *P. punctata* L.

Decaloba tuberosa M. Roemer, Fam. Nat. Syn. 2: 160. 1846.

Plant glabrous throughout; stipules narrowly linear, up to 5 mm. long, falcate, coriaceous; petioles up to 2 cm. long, glandless; leaves oblong, deeply 2-lobed, 4 to 6 cm. along midnerve, 7 to 12 cm. along lateral nerves, 5 to 7 cm. between apices of lobes (lobes lanceolate or oblong-lanceolate, obtuse, mucronulate), rounded at base, 3-nerved (a secondary pair of nerves just below sinus), closely reticulate-veined, subcoriaceous, sublustrous above, pale beneath; peduncles in

pairs, up to 4 cm. long; bracts setaceous, 2 to 3 mm. long; flowers 4.5 to 5 cm. wide, white; sepals oblong-lanceolate, 1.5 to 2 cm. long, 0.6 cm. wide, obtuse; petals ovate-lanceolate, 0.6 to 1 cm. long, 0.3 to 0.4 cm. wide, obtuse; corona filaments in 2 series, the outer strap-shaped, 3 to 4 mm. long, 0.8 to 1 mm. wide, slightly clavate at apex, the inner filiform, barely 0.5 mm. long; operculum plicate; limen none; ovary subglobose, glabrous.

TYPE LOCALITY: West Indies.

ILLUSTRATIONS: Jacq. Pl. Hort. Schönbr. 4: *pl. 496;* Bot. Cab. 2: *pl. 101;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 23, f. 1;* Bot. Reg. 5: *pl. 432.*

DISTRIBUTION: St. Thomas, Trinidad, and northern South America, just entering northern Brazil, near sea level.

LOCALITY UNCERTAIN: "Hort. Schön." (V, type).

ST. THOMAS: *Finlay 183* (P).

TRINIDAD: *Pruess 1463* (B); *Trinidad Herb. 2588* (T), *2599* (T), *3851* (T), *5703* (T). Tabaquite, *Broadway* in 1918 (F, G, N, T, Y). Providence, *Broadway 2846* (B). Aripo, *Trinidad Herb. 9808* (T). Marabella, *Trinidad Herb. 2594* (T). Fort George, *Trinidad Herb. 2595* (T). Blue Basin, *Trinidad Herb. 10743* (T). Tobago, *Eggers 5949* (B).

BRITISH GUIANA: *Appun 2080* (K). Pirara, *Schomburgk 642* (B, K).

VENEZUELA: Sucre: Cumaná, *Humboldt & Bonpland 234* (B, BW).

BRAZIL: Amazonas: Rio Branco, *Ule 28* (B).

The absence of a limen is the outstanding feature of this plant, a species of rather limited distribution, not readily confused with others.

61. **Passiflora lancearia** Mast. Journ. Bot. Brit. & For. 23: 114. 1885.

Stem stout, striate, glabrous or the younger branches minutely and sparingly puberulous; stipules setaceous, 1 cm. long, deciduous; petioles strongly furrowed, glabrous, 1 to 1.5 cm. long, glandless; leaves oblong-lanceolate, 4 to 8 cm. long, 2 to 4 cm. wide, entire (or obscurely lobed on each side about 1 cm. below the apex, the younger leaves more deeply lobed), acuminate, tapering at base, strongly 3-nerved, bearing 4 to 8 ocellae on the lower surface, thick-coriaceous, bright green and shining above, paler beneath, glabrous; peduncles

in pairs, 6 to 8 mm. long, glabrate or puberulous; bracts linear-setaceous, 1.2 mm. long; flowers 3 to 4 cm. wide, the calyx densely white-tomentose within; sepals ovate-lanceolate, 1.2 to 1.5 cm. long, 7 to 10 mm. wide, obtuse, green without, white within; petals one-third to one-half as long as the sepals, white; corona filaments in two series, the outer filaments filiform, 4 to 5 mm. long, reflexed, the inner barely 2 mm. long, capillary, very slightly clavate; operculum membranous, closely plicate, 4 mm. high, strongly incurved over the floor of the calyx; limen annular, fleshy, erect, 1 mm. high, its inner side and the central portion of the floor of the calyx densely tomentose; ovary ovoid or ellipsoid, glabrous, dull brown; fruit subglobose, 3 cm. in diameter, glabrous; seeds broadly ovate, 6 mm. long, 4.8 mm. wide, flattened, transversely sulcate, with 7 or 8 ridges.

TYPE LOCALITY: Near La Palma and San Isidro, on the slopes of "Tranzu" (Irazú) Volcano, Costa Rica.

DISTRIBUTION: Mountains of central Costa Rica, between 1,300 and 1,700 meters altitude.

COSTA RICA: Irazú Volcano, *Lehmann 1255* (Bo, type). La Hondura, *Standley 36250* (N), *36312* (N), *37742* (N), *37869* (N). La Palma, *Standley 32959* (N), *38051* (N); *Tonduz 12450* (N); *Biolley 14026* (N). Peralta, *Stork 476* (N). El Muñeco, *Standley 51286* (N). La Estrella, *Standley 39308* (N). Agua Caliente, *Lankester K141* (K). La Palma de San Ramón, *Brenes 6778* (F).

This species differs markedly from other Central American representatives of *Decaloba*. It has thick, nearly entire leaves, which are fully twice as long as broad; the calyx is covered within by a dense, white tomentum; and the seeds are almost twice as large as those of other species of this group. Masters' description of the corona filaments as "petaloideis 1-serialibus falcato-spatulatis" apparently is erroneous, for the corona is 2-ranked, the filaments of the outer rank being filiform and those of the inner capillary-clavate.

Several of the specimens cited above have rather deeply lobed leaves, which are broader than long. In each instance these specimens are without flowers, and apparently represent a juvenile stage.

62. **Passiflora magdalenae** Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 166. 1873.

Stem angulate, tortuous, glabrous, or the younger parts finely pubescent; stipules subulate, 3 to 3.5 mm. long; petioles slender, up to 5 cm. long, glandless, glabrous or finely appressed-pubescent; leaves triangular-obovate, 4 to 8 cm. long, 5 to 8 cm. wide, truncately

3-lobed (lobes 0.8 to 1.5 cm. long, rounded or truncate, mucronulate, subequal or the middle longer than the lateral), cuneate at base, ocellate beneath, glabrous, membranous, usually reddish beneath; peduncles solitary or in pairs, 2 to 3 cm. long, very slender; flowers up to 3 cm. wide, purplish white(?); sepals lanceolate, 1 to 1.5 cm. long, about 0.4 cm. wide, obtuse; petals similar to and slightly shorter than sepals; corona filaments numerous, in 2 or 3 indefinite series, filiform, about 8 mm. long; operculum plicate, lobulate at margin; limen saucer-shaped, subcrenulate; ovary subglobose, tomentellous when young, at length nearly glabrous; fruit globose, 8 to 9 mm. in diameter, black; seeds narrowly obcordate, about 3 mm. long, 2 mm. wide, acute at apex, transversely sulcate with about 6 grooves.

TYPE LOCALITY: Magdalena Valley, between Guaduas and Peñón de Conejo, Colombia.

DISTRIBUTION: Upper Magdalena Valley, Colombia.

COLOMBIA: Cundinamarca: Between Guaduas and Peñón de Conejo, *Goudot* in 1844 (P, type).—Tolima: Líbano, 800 meters, *Pennell 3386* (G, N, Y).

The shape of the leaves of this species is unlike that of any of its relatives, and the plant is easily recognized.

63. **Passiflora panamensis** Killip, Journ. Wash. Acad. Sci. 12: 259. 1922.

Plant glabrous throughout; stem angulate, grooved, flexuous; stipules linear-falcate, 4 to 5 mm. long; petioles 1.5 to 2.5 cm. long, glandless; leaves suborbicular in general outline, 5 to 8 cm. long, 5 to 7 cm. wide, 3-lobed (lobes approximate, subequal or the middle slightly longer, about one-third the length of blade, triangular, acute or somewhat obtuse, mucronate), rounded or subpeltate at base, 3-nerved, subcoriaceous, ocellate beneath; peduncles 2.5 to 4 cm. long, articulate about 6 mm. below the flower; bracts setaceous, deciduous, 2 borne at the point of articulation, the third near the middle of the peduncle; flowers about 3 cm. wide; sepals oblong-lanceolate, 1.2 to 1.4 cm. long, 6 to 7 mm. wide, obtuse, yellowish green; petals rose-colored, spatulate, 8 mm. long, 3 to 4 mm. wide; corona filaments in 2 series, the outer 7 mm. long, subfalcate, dilated and 3-angled toward apex, the inner 3 mm. long, capillary, minutely capitellate; operculum membranous, pink, plicate, erect, crenulate; limen annular; ovary globose, sparingly strigillose; fruit globose, 2 cm. in diameter, glabrate; seeds straw-colored, obovate, apiculate,

strongly flattened, transversely sulcate with about 6 sharp, somewhat rugulose ridges.

TYPE LOCALITY: Southern Darién, Panama.

DISTRIBUTION: Known only from the type locality, in eastern Panama.

PANAMA: Panama: Along Sambú River, southern Darién, *Pittier 5556* (F, N, type).

The shape of the leaves of *P. panamensis* is similar to that of typical forms of *P. tricuspis*. The flowers are quite different, however, the angled filaments of the outer corona indicating probably a closer relationship with *P. biflora*.

64. **Passiflora cuspidifolia** Harms in Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 72. *f. 25B*. 1893; Bot. Jahrb. 18: Beibl. 46: 3. 1894.
Passiflora mollis var. *integrifolia* Planch. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 550. 1872.
Passiflora mollis var. *subintegra* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 164. 1873.

Plant subglabrous or pilosulous; stem angular, compressed; stipules subulate, 2 to 3 mm. long; petioles up to 1.5 cm. long, glandless; leaves ovate to oblong-ovate, 7 to 15 cm. long, 3 to 7 cm. wide, entire or obscurely lobed just below the acute or subacute apex, rounded at base, 3-nerved, ocellate, subcoriaceous, glabrous and lustrous above, pilosulous and dull beneath; peduncles solitary or in pairs, slender, 1.5 to 3.5 cm. long; bracts linear-subulate, 2 to 3 mm. long, scattered, persistent; flowers about 3 cm. wide; sepals oblong, 1.5 cm. long, 3 to 4 mm. wide; petals slightly smaller than sepals; corona filaments in 2 series, the outer narrowly liguliform, very slightly dilated above middle, narrowed at apex, about 4 mm. long, erect, the inner filiform, about 3 mm. long; operculum plicate, denticulate; nectar ring annular; limen annular, close to preceding; ovary subglobose, pilose; fruit globose, about 1 cm. in diameter.

TYPE LOCALITY: Between Vergara and Pacho, Cundinamarca, Colombia.

ILLUSTRATIONS: Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 72. *f. 25B;* ed. 2, 21: 477. *f. 218B;* Mutis, Icon. Pl. Ined. 26: *pl. 16*.

DISTRIBUTION: Eastern Cordillera of Colombia, between 1,500 and 2,500 meters altitude.

COLOMBIA: Santander: Mesa de Los Santos, *Killip & Smith 15320* (N, Y). Páramo del Roble, *Goudot 11* (K, type of *P. mollis* var.

integrifolia, P).—Boyacá: Mt. Chapón, *Lawrance 87* (Gen, N, Y).—Cundinamarca: *Mutis 2272* (Ma), *4412* (Ma); *Dawe 67* (K, N). Between Vergara and Pacho, *Lehmann 7629* (B, type, G, K). Tena, *Lehmann 6105* (B, K). Tenasuca, *Triana 2548* (BM, type of *P. mollis* var. *subintegra*, Gen, HNC, K, P). Fusagasugá, *Lehmann 2525* (Bo, Gen, K); *Dawe 347* (K). Albán, *Pérez 2574* (HNC).

Passiflora cuspidifolia, *P. mollis*, *P. bogotensis*, *P. alnifolia*, *P. bauhinifolia*, and *P. Tatei* are very closely related, and the drawing of lines of differentiation between them, and the assorting of herbarium material among them, present much difficulty. Original descriptions of four of the species dealt mainly with vegetative parts, and attempts by later writers to form correct interpretations of the species through the study of the dried flowers have not proved wholly successful. The outer corona filaments, which doubtless constitute the true basis of differentiation, are quite succulent, and in the process of drying lose much of their original shape. Moreover, many of the specimens were evidently past their prime flowering state when collected.

In view of the complexity of these six species, it seems desirable to discuss them at one place:

Passiflora cuspidifolia.—The outer corona filaments are much slenderer than in *P. mollis*, *P. alnifolia*, or *P. bogotensis*, and, though not long-attenuate as in *P. bauhinifolia* and *P. Tatei*, they are rather narrower at the extremity than in the three others. A nectar ring is present, as in *P. alnifolia*, but the operculum is entire at the margin. The leaves closely approximate typical forms of *P. mollis*, though the middle lobe is sharper. The indument is much scantier than in the close relatives. This apparently is a rare species.

Passiflora mollis.—The outer corona filaments have nearly straight edges; if they are dilated at all, it is at or just above the middle, hence they are slightly fusiform. The leaves were described by Kunth as being 3-lobed with a prominent middle lobe and much reduced lateral lobes, and glabrous above. The type locality is given as "cum praecedente" (*P. alnifolia*), which was along the banks of the Río Cuello on the Quindío Trail, Colombia. I collected five specimens along the Río Cuello or in close vicinity to it, and these, in general, agree with Kunth's description and with type material at Berlin. The leaves are all more or less pubescent above; in *No. 9607* they are lunately bilobed at the apex with no vestige of an intermediate lobe; in *No. 9592* the three lobes are nearly equal. Unfortunately, the flowers were withered, but apparently the outer

corona filaments are at the most very slightly dilated. The Salento specimen is in fruit only and the La Cumbre one is sterile; both have the middle leaf lobe prominent. In the Fendler specimen from Venezuela, which bears excellent flowers, the leaves are nearly glabrous above and have a prominent middle lobe, and the outer corona filaments are very slightly dilated just above the middle. *Passiflora mollis*, therefore, appears to be characterized by liguliform or slightly fusiform outer corona filaments, and by the usually 3-lobed leaves, which have a prominent intermediate lobe.

This, also, is a rather rare species, known, however, from such widely separated localities as the middle part of the Central Cordillera of Colombia, the Santa Marta Mountains, and the north-central part of Venezuela.

Passiflora bogotensis.—The outer corona filaments are abruptly dilated at the apex into a flat-topped knob. The specimens cited under this show great uniformity in indument and in the shape of the leaves, the principal difference lying in the degree of development of the central lobe.

This plant proved to be quite common in the portions of the Eastern Cordillera visited by Mr. Smith and myself, and apparently extends as far north as the Santa Marta Mountains and eastward into east-central Venezuela. *Passiflora Pala*, described from the Santa Marta Mountains, is scarcely distinct.

Passiflora alnifolia.—Like *P. bogotensis* the outer corona filaments are abruptly dilated, but beyond this dilation they taper off into a filiform tip. A narrow nectar ring is usually present between the operculum and the limen. The limen is rather more prominent than in *P. mollis* or *P. bogotensis*, and usually is denticulate.

In the type specimen at Paris the leaves are very shallowly 2- or 3-lobed or are merely undulate along the truncate upper margin, thus closely approaching forms of *P. bogotensis*. Several of the specimens here cited correspond exactly with the type in leaf shape, but many of them have much more deeply bilobate leaves. In general, the pubescence is much lighter than in *P. mollis* or *P. bogotensis*.

This is the common species of this relationship in the Colombian Central Andes.

Passiflora bauhinifolia.—The outer corona filaments are slenderer than in the above four species, are not dilated, and taper to an acute apex. A nectar ring is present, and the operculum is usually denticulate, as in *P. alnifolia*. The leaves are very similar to those of *P. alnifolia*.

It apparently is restricted to the extreme southwestern part of Colombia, and Ecuador.

Passiflora Tatei.—This has the coronal structure of *P. bauhiniifolia*, the differences between the two lying in the bracts, calyx tube, and petals. This is known only from a single collection, from the mountains of Bolivia.

65. **Passiflora mollis** HBK. Nov. Gen. & Sp. 2: 137. 1817.

Decaloba mollis M. Roemer, Fam. Nat. Syn. 2: 162. 1846.

Passiflora mollis var. *obtusiloba* Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 164. 1873.

Stem angulate, flexuous, densely and softly villosulous; stipules narrowly linear, 6 to 8 mm. long, falcate; petioles up to 1 cm. long, glandless; leaves oblong or ovate-oblong, 5 to 10 cm. long, 3 to 7.5 cm. wide, 3-lobed at apex (middle lobe subtriangular, rounded or acutish, the lateral lobes usually much shorter, rounded or rarely acutish, often obsolescent so that the leaf is subentire, rarely the lateral lobes subequal to the middle lobe), or sometimes lunately bilobed, rounded at base, subcoriaceous, finely pubescent or glabrescent above, densely and softly ferruginous-villosulous-tomentose beneath; peduncles solitary or in pairs, 5 to 10 mm. long; bracts setaceous, 2 to 3 mm. long, purplish, soon deciduous; flowers 3 to 3.5 cm. wide; sepals linear-oblong, 8 to 10 mm. long, about 2 mm. wide, reddish without, greenish white or yellowish within; petals linear, 4 to 5 mm. long, 1 to 1.5 mm. wide, greenish white or yellowish; corona filaments in 2 series, the outer fusiform or liguliform, about 4 mm. long, the inner filiform, 2 to 3 mm. long, capitellate; operculum closely plicate, denticulate; limen annular; ovary globose, densely villous; fruit globose, about 1 cm. in diameter, pilosulous; seeds obovate, about 3 mm. long and 2 mm. wide, transversely 5–6-sulcate.

TYPE LOCALITY: Río Cuello, Quindío Mountains, Colombia.

DISTRIBUTION: Aragua, Venezuela; Central Cordillera of Colombia and the Santa Marta Mountains, 1,500 to 3,200 meters altitude.

VENEZUELA: Aragua: Colonia Tovar, *Fendler 478* (Bo, Brux, Gen, K, Mo, P).

COLOMBIA: Goajira: Taquina Arriba, 3,250 meters, *Schlim 830* (Brux, type of *P. mollis* var. *obtusiloba*, Gen).—Tolima: Río Cuello, *Humboldt & Bonpland* (P, type); *Killip 9725* (N), *9728* (N). San Miguel, New Quindío trail, *Killip 9743* (N). Azufral, Quindío

trail, *Killip & Hazen 9592* (N), *9607* (N). Honda, *Humboldt & Bonpland* (B). Quindío trail, *Goudot* (P).—Caldas: Salento, *Killip 10101* (N).—El Valle: La Cumbre, *Killip 5687* (B, G, N, Ph, Y).

66. **Passiflora pilosissima** Killip, Journ. Wash. Acad. Sci. 21: 348. 1931.

Plant up to 10 meters long, much branched; stem subquinquangular, striate, the younger portions densely pilose; stipules narrowly linear-falcate, 3 to 4 mm. long, 1 mm. wide at base, purplish, deciduous; petioles 5 to 15 mm. long, glandless, pilose, purplish; leaves ovate, 5 to 12 cm. long, 2 to 7 cm. wide, 3-lobed at apex (middle lobe triangular, acute or subacute, cuspidate or mucronulate, much larger than the lateral lobes which sometimes are reduced to mere cusps), rounded at base, entire, 3-nerved, obscurely ocellate beneath, membranous, densely appressed-pilose on both surfaces; peduncles in pairs; bracts narrowly linear, subverticillate or one borne just below the 2 others, 5 to 6 mm. long, 0.5 mm. wide, dark purple; flowers (in bud only in type specimen) "greenish white"; sepals ovate-lanceolate, obtuse, fleshy; petals ovate, obtuse, thin-membranous; corona filaments in 2 series, the outer linear-lanceolate, tapering gradually from base to apex, half as long as sepals, the inner filiform, minute; operculum closely plicate, denticulate; limen annular, prominent; ovary globose, densely hirsute.

TYPE LOCALITY: Between San Gregorio and Nariño, Department of Antioquia, Colombia.

DISTRIBUTION: Western Colombia, between 1,500 and 2,100 meters altitude.

COLOMBIA: Antioquia: Between San Gregorio and Nariño, *Lehmann 7630* (B, G, K, N, type).—El Valle: La Cumbre, *Killip 11342* (N).

The Lehmann collection was distributed as *P. mollis*, but the nature of the indument is wholly unlike that of *P. mollis*. Although the flowers of this specimen are in bud only, the outer corona filaments are sufficiently developed to show that they are linear-lanceolate, tapering from the base to the apex, whereas in *P. mollis* they are liguliform or slightly fusiform.

67. **Passiflora bogotensis** Benth. Pl. Hartw. 184. 1845.

Decaloba bogotensis M. Roemer, Fam. Nat. Syn. 2: 158. 1846.

Passiflora Pala Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 162. 1873.

Plant ferruginous-villosulous to densely villous-tomentose; stem angulate; stipules setaceous, 4 to 5 mm. long, deciduous; petioles 6 to 10 mm. long, glandless; leaves oblong, occasionally triangular-ovate or almost oval, 4 to 9 cm. long, 3 to 4.5 cm. wide, shallowly 2-lobed at truncate apex, occasionally with a small intermediate lobe or subentire and undulate at apex (lobes not more than 1.5 cm. long, obtuse or rounded, often emarginate), rounded or cordulate at base, conspicuously 3-nerved (nerves subparallel, impressed above), subcoriaceous, villosulous-tomentose or nearly glabrous, dull or lustrous above, ferruginous-hirsutulous-tomentose beneath, especially on nerves; peduncles solitary or in pairs, up to 3 cm. long; bracts setaceous, 3 to 5 mm. long, purplish; flowers up to 4 cm. wide; sepals narrowly lance-oblong, 1 to 1.5 cm. long, about 5 mm. wide at base, obtuse, green or purplish without, white within, sparsely pilosulous or hirsute without; petals linear-oblong, 0.6 to 0.8 cm. long, obtuse, white; corona filaments in 2 series, the outer filaments narrowly liguliform, 4 to 5 mm. long, subangular, dilated into a capitate apex, yellow-green, purple-banded, the inner filaments filiform, 2 to 3 mm. long, subcapitate, grass-green; operculum strongly plicate, minutely denticulate, grass-green; nectar ring none; limen annular, green; ovary globose, densely white-pilose; fruit globose, 1 to 1.5 cm. in diameter; seeds ovate or cuneate-obovate, about 3 mm. long, 2 mm. wide, transversely 6-sulcate.

TYPE LOCALITY: Between Bogotá and Zipaquirá, Colombia.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: *pl. 23*.

DISTRIBUTION: Santa Marta Mountains and Eastern Cordillera of Colombia, 2,000 to 3,000 meters altitude; mountains of northeastern Venezuela(?).

VENEZUELA: Monagas: Cerro de Turumiquire, *G. H. H. Tate 137* (N).

COLOMBIA: *Triana 527* (N).—Goajira: Santa Marta Mountains, *Linden 1661* (BM, Gen, P, type of *P. Pala*).—Magdalena: Santa Marta Mountains, *Simmons 8* (BM).—Santander: Las Vegas, *Killip & Smith 15506* (A, G, N, Y), *16111* (A, G, N, Y). Suratá, *Killip & Smith 16607* (A, G, N, Y). La Baja, *Killip & Smith 17196* (A, G, N, Y), *18146* (G, N, Y). Between California and Vetas, *Killip & Smith 18000* (A, G, N, Y). Charta, *Killip & Smith 19234* (A, G, N, Y), *19243* (A, G, N, Y).—Boyacá: Monifuira, *Dawe* in 1919 (K).—Cundinamarca: Between Bogotá and Zipaquirá, *Hartweg 1021* (K, type). Zipaquirá, *Lehmann 7628* (B, G, K, N, S); *Pennell*

2562 (G, N, Y). Chuquinquirá, *Apollinaire Marie* (G). Ubaté, *Goudot* in 1844 (Bo, K, P). Tequendama Falls, *Lehmann 2538* (B, Bo, G, K, N). Quetamé, *André 1011*, in part (K). Cajica, *Ariste Joseph A511* (N). Subachoqué, *Ariste Joseph B38* (N). Bogotá, *Ariste Joseph B110* (N); *Schultze 56* (B), *225* (B). Uñe, *Dawe 353* (K, N); *Apollinaire Marie* in 1925 (Bog, N). Fusagasugá, *Dawe* in 1919 (K). Suba, *Instituto de La Salle* (Bog). Guasca, *Pérez 1149* (N); *Ariste Joseph 908* (Bog). Serrezuelita, *Tracey 439* (K).

The extension of range of this species to northeastern Venezuela is based upon *Tate 137* from the Cerro de Turumiquire. This specimen is in young bud only, the corona filaments not being developed sufficiently for its positive identification. In shape of the leaves and bracts and in indument the plant is identical with typical *P. bogotensis*.

Passiflora Pala appears to be indistinguishable from *P. bogotensis*. Masters referred to it a number of André specimens from western Colombia and one from Ecuador, but all of them represent *P. alnifolia* or *P. bauhinifolia*.

68. **Passiflora alnifolia** HBK. Nov. Gen. & Sp. 2: 136. 1817.

Decaloba alnifolia M. Roemer, Fam. Nat. Syn. 2: 158. 1846.

Stem stout, subtriangular, glabrescent to densely pubescent; stipules linear-falcate, up to 7 mm. long, 1.5 to 1.8 mm. wide, acuminate; petioles up to 3 cm. long; leaves ovate or ovate-oblong, 6 to 10 cm. long, 4 to 7 cm. wide (lower leaves up to 15 cm. long and 12 cm. wide), 2-lobed at apex (intermediate lobe often present; lobes acute or occasionally rounded, mucronate), broadly truncate at base, subcoriaceous, glabrescent or finely puberulent above, sparsely pubescent to subtomentose beneath; peduncles up to 6 cm. long; bracts borne near apex of peduncle, setaceous to narrowly oblanceolate, up to 1 cm. long and 0.9 mm. wide; flowers up to 5 cm. wide; sepals ovate-lanceolate, up to 2 cm. long, 1 cm. wide at base, obtuse, puberulent or densely pubescent and green without, white within, often violet-tinged at base; petals ovate, up to 1.5 cm. long, 4 to 5 mm. wide, obtuse, white or often violet-tinged at base within; corona filaments in 2 series, the outer cultrate, 6 to 8 mm. long, yellow at apex, green or green and purple-maculate below, the inner series filiform, 5 to 6 mm. long, obscurely capitellate, bright grass-green; operculum closely plicate, bright grass-green or often paler at margin, the margin slightly incurved, minutely fimbrillate; nectar

ring annular, entire, situated at base of preceding; limen saucer-shaped, 2 mm. high, outside pink-maculate toward base, inside streaked with pink, the margin denticulate or subentire; anthers and styles deep purple; ovary globose or subovoid, densely villous; fruit globose, up to 1.5 cm. in diameter, at length glabrous; seeds obovoid, 3 to 4 mm. long, 2 to 3 mm. wide, tapering at base, lustrous, transversely 4–6-sulcate.

TYPE LOCALITY: Río Cuello, Quindío Mountains, Colombia.

DISTRIBUTION: Central Cordillera of Colombia to mountains of southern Colombia, 1,500 to 3,000 meters altitude.

COLOMBIA: *Triana 526* (N).—Tolima: Río Cuello, Quindío Trail, *Humboldt & Bonpland* (B, Gen, P, type). New Quindío Trail, *Hazen 9673* (G, N, Ph, Y); *Killip 9748* (N). Murillo, *Dawe 771* (K, N, Y).—Antioquia: El Jardín, *Lehmann 7627* (B, G). Caramanta, *Pennell 10780* (G, N).—Caldas: Salento, *Pennell, Killip & Hazen 8744* (G, N, Ph, Y); *Killip & Hazen 10117* (G, N, Y); *André 2323*, in part (K, Y). Calarcá, *Killip 9794* (G, N, Ph, Y). San Clemente, *Pennell 10666* (G, N, Ph, Y).—El Valle: Cuesta de Tocotá, *Pittier 689* (N). Río Dagua, *Lehmann 2758* (B, Bo, K, N); *Pérez 4719* (HNC). Cañitas, *André 1011*, in part (K).—El Cauca: Cuatro Esquinas, *Pennell & Killip 6349* (N). Slopes of Mt. Puracé, *Pennell & Killip 6450* (G, N, Ph, Y), *6620* (G, N). Coconuco, *Killip 6869* (G, N, Ph, Y). Popayán, *Pennell & Killip 7190* (N); *Lehmann 3459* (B, Bo, G, K), *8021* (B, G, K). Santa Rosa de Cábal, *Lehmann 3057* (Bo, N). Dolores, *André 2838* (K).—Nariño: Tuquerres, *Triana 2949* (BM, K, P). Pasto, *Lehmann 674* (B, Bo, N), *4840* (B, K), *6156* (B, N); *Karsten* (V).

Only slight variations are noticeable among the large number of specimens of this species that have been examined. Both obtuse and acute leaf lobes are to be found; the depth of the lobation varies; and the flowers apparently are either white or bluish.

69. **Passiflora bauhinifolia** HBK. Nov. Gen. & Sp. 2: 132. 1817.

Cieca bauhiniaefolia M. Roemer, Fam. Nat. Syn. 2: 145. 1846.

Passiflora Andreana Mast. Journ. Linn. Soc. 20: 37. 1883.

Stem angulate, compressed, striate, densely and softly pubescent; stipules linear-subulate, 5 to 7 mm. long, subfalcate, purplish; petioles 1 to 2.5 cm. long, glandless; leaves oblong or ovate-oblong in general outline, 5 to 9 cm. long, 4 to 6.5 cm. wide, shallowly bilobed at apex (or with a short intermediate lobe, the lobes obtuse

or acutish, mucronulate), rounded, subtruncate, or shallowly cordate at base, 3-nerved, ocellate (ocellae in lines between midnerve and lateral nerves), membranous, glabrous above, minutely puberulous on nerves and veins, densely and softly appressed-pilosulous beneath; peduncles solitary or in pairs, 3.5 to 5 cm. long, articulate near apex; bracts linear-setaceous, 4 to 5 mm. long, purplish, borne above middle of peduncle; sepals oblong-lanceolate, 1 to 1.5 cm. long, 3 to 4 mm. wide, obtuse, 3-nerved, pilosulous without; petals ovate-lanceolate, 0.5 to 0.7 cm. long, 0.3 to 0.4 cm. wide, obtuse, deep pink, glabrous; corona filaments in 2 poorly marked series, the outer narrowly liguliform, almost filiform, 5 to 7 mm. long, subtrigonous, attenuate at apex, the inner capillary, 3 to 4 mm. long; operculum borne close to the corona, plicate, slightly incurved; nectar ring annular; limen membranous, about 1 mm. high, erect, denticulate or nearly entire, slightly incurved at margin; ovary globose, densely yellowish-villous; fruit globose, 1 cm. in diameter, or slightly larger; seeds ovate-orbicular, 2.5 to 3 mm. long, 2 to 2.5 mm. wide, slightly asymmetrical, transversely sulcate, with 6 or 7 rugulose ridges broken near center of face.

TYPE LOCALITY: "Regni Quitensis" (Ecuador).

DISTRIBUTION: Mountains of southwestern Colombia, Ecuador, and northern Peru, from 2,000 to 3,100 meters altitude.

COLOMBIA: El Cauca: Naranjo, Río Dagua, *André 1807*, in part (K). Jiménez, Río Dagua, *André 2323*, in part (K), *2518* (K).—Nariño: La Laja, near Ipiales, *André 3478* (K, type of *P. Andreana*, Y). Tuquerres, *André 1011*, in part (K, Y).

ECUADOR: *Couthouy* (G); *Bourcier* in 1851 (P); *Mille* (N).—Pichincha: Quito, *Humboldt & Bonpland* (B, type); *Mille 222* (N); *Hall 11* (B, K); *Jameson* (K); *Benoist 2102* (P). Río Pilatón, *Sodiro 562* (B, N), in 1908 (N). Verdecruz, *Firmin 310* (N). Guapulo, *Stevens 258* (N).—Tungurahua: Mt. Tungurahua, *Lehmann 675* (Bo, N). Baños, *Lehmann 8020* (B, G, N, S); *Spruce* (K).—Chimborazo: Mt. Chimborazo, *Mille* in 1914 (N). Chambo, *Mille* in 1914 (N).

PERU: Cajamarca: Huambo, *Raimondi 2233* (B).

Passiflora bauhinifolia was described as apetalous, and has heretofore been treated as an apetalous species. The single flower of the type specimen at Berlin is not in condition to show whether or not petals are present. Stevens' specimen, also in bud, was compared with it, however, and the two seem to be identical. Petals are

readily discernible in this Stevens plant, though it is not possible to form a satisfactory concept of the corona structure.

Mille 222 from Quito, the type locality of *P. bauhinifolia*, is in good flower and fruit. In leaves, stipules, and bracts it agrees exactly with Stevens' plant, and likewise, in every detail, including flower structure, with a specimen of the type of *P. Andreana* in the herbarium of the New York Botanical Garden.

Masters described the corona filaments of *P. Andreana* as one-ranked. Apparently, though, they are in two ranks. The inner filaments are very slender and rather longer than elsewhere in this group. In the type specimen of *P. Andreana* the limen is noticeably denticulate, but in others it is subentire.

The foliage of *P. bauhinifolia* is much like that of the more common *P. alnifolia*. In the latter species, however, the outer corona filaments are conspicuously cultrate, not narrowly ligulate and of nearly uniform width as in *P. bauhinifolia*.

The André collections are confusing because of the fact that André often assigned the same number to specimens collected at different localities which he considered as belonging to one species. This confusion is notable in the citations given by Masters (Journ. Linn. Soc. 20: 25–44. 1883) in reporting upon André's Passifloraceae. Thus, *André 1011* consists of three collections, representing three species: the Quetamé one is *P. bogotensis*, that from Cañitas *P. alnifolia*, and that from Tuquerres *P. bauhinifolia*. *No. 1807* from the Río Dagua is *P. bauhinifolia*, from Mt. Corazón *P. chelidonea*, and from Tocaima *P. rubra*.

70. **Passiflora Tatei** Killip & Rusby, Phytologia 1: 66. 1934.

Stem trigonous, densely pilosulous; stipules narrowly linear-falcate, 7 to 10 mm. long, 0.5 mm. wide, purplish; petioles 1 to 2.5 cm. long, glandless, pilosulous; leaves oblong or suborbicular in general outline, 3.5 to 10 cm. long, 3 to 7 cm. wide, obsoletely 2–3-lobed at the truncate apex, rounded or shallowly cordate at base, entire, 3-nerved, subcoriaceous, lustrous and minutely puberulous above, dull red, densely pilosulous on the nerves and veins beneath; peduncles solitary or in pairs, 3.5 to 4 cm. long, slender; bracts dissitate, 6 to 9 mm. long, setaceous, deeply 2–3-cleft, purplish; flowers 2.5 to 3.5 cm. wide; calyx tube broadly campanulate, 7 to 10 mm. wide at base; sepals linear or lanceolate, about 1.5 cm. long, 0.4 cm. wide, obtuse, greenish white; petals narrowly-linear, 7 to 9 mm. long, 1.5 mm. wide, obtuse, white; corona in 2 series, the outer

narrowly liguliform, about 8 mm. long, the inner filiform, 2 to 3 mm. long; operculum closely plicate, about 1.5 mm. high, denticulate, incurved; nectar ring annular; limen cupuliform, about 2 mm. high; ovary globose, densely lanate-villose; fruit globose; seeds ovate-orbicular, transversely sulcate.

TYPE LOCALITY: Nequejahuira, Bolivia.

DISTRIBUTION: Mountains of western Bolivia.

BOLIVIA: La Paz: Nequejahuira, 2,500 meters, *G. H. H. Tate 654* (N, Y, type).

This has the general appearance of *P. bauhinifolia.* In *P. Tatei,* however, the bracts are deeply cleft, in *P. bauhinifolia* entire; the calyx tube is much broader in *P. Tatei,* and the petals are narrowly linear, rather than ovate-lanceolate.

71. **Passiflora cuneata** Willd. Enum. Hort. Berol. 696. 1809.

Decaloba cuneata M. Roemer, Fam. Nat. Syn. 2: 158. 1846.

Passiflora furcata Mast. in Mart. Fl. Bras. 13, pt. 1: 550. 1872.

Passiflora bifurca Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 162. 1873.

(?)*Passiflora luciensis* Urban, Symb. Antill. 3: 324. 1902.

Passiflora flexicaulis Killip ex Knuth, Repert. Sp. Nov. Beih. 43: 496. 1927 (name only).

Stem stout, strongly compressed and angulate, usually flexuous, glabrous or finely pilosulous; stipules narrowly linear or setaceous, up to 6 mm. long; petioles up to 2.5 cm. long, slender, glandless, pubescent; leaves variable, oblong or ovate-oblong, 4 to 8 cm. long, 3.5 to 5 cm. wide, 2-lobed (lobes one-fifth to one-third length of blade, or rarely up to two-thirds, oblong, ovate-oblong, or rarely linear, rounded or obtuse at apex, the sinus rounded, truncate, or occasionally with a minute intermediate lobe), or 3-lobed (middle lobe equaling or shorter than the lateral lobes), cuneate or rounded at base, 3-nerved, reticulate-veined, membranous, glabrous or finely pilosulous; peduncles solitary or in pairs, slender, elongate, up to 5 cm. long; flowers 3.5 to 4 cm. wide; sepals linear-lanceolate, 1 to 1.5 cm. long, 3 to 4 mm. wide, obtuse, green without, white within; petals lanceolate, about 5 mm. long, 4 mm. wide at base, white; corona filaments in 2 series, the outer cultrate or spatulate, 3 to 5 mm. long, dilated at or above middle, conspicuously 3-angled, yellow-green, banded with purple, the inner filiform, about 2 mm. long, grass-green; operculum membranous, plicate, incurved, grass-green;

limen annular; ovary subglobose, glabrous or densely pilose, especially along the obscure ribs; fruit globose, about 1.5 cm. in diameter, pilosulous, at length glabrate; seeds ovoid, about 2.5 mm. long, 1.5 mm. wide, transversely sulcate with 5 or 6 ridges.

TYPE LOCALITY: Caracas, Venezuela.

DISTRIBUTION: Mountains of central Venezuela; Santa Marta Mountains and Eastern Cordillera of Colombia; ascending to 3,800 meters altitude in Colombia, and found in the valleys as low as 700 meters. Also on St. Lucia(?).

ST. LUCIA(?): *Duss 442* (B, type of *P. luciensis*).

VENEZUELA: *Burchell* (K, type of *P. furcata*); *Ernst 926* (BM), *927* (K).—Federal District: Caracas, *Bredemeyer* (BW, type); *Pittier 6197* (N), *7570* (B, Gen, N), *9512* (N, Y), *9591* (N), *9833* (N, Y). Los Venados de Galipán, *Pittier 10440* (G, Gen, N, Y).—Aragua: Colonia Tovar, *Moritz 791* (B, BM), *1898* (K, V); *Fendler 483* (Bo, Brux, G, Gen, K, Mo, P), *484* (G, K, Mo).—Mérida: *Moritz 1316* (B, BM). Páramo del Morra, *Jahn 1072* (N). Tabay, *Gehriger 464* (N).

COLOMBIA: Magdalena: Santa Marta Mountains, *H. H. Smith 1594* (CM, G, K, Ma, N, Y), *1697* (B, BM, G, Gen, K, N, P, Y). Sierra del Líbano, *H. H. Smith 1761* (A, B, BM, Brux, CM, F, Gen, K, N, P, Ph, S, Ut, Y). San Lorenzo Mountains, *Viereck 25* (N).—Norte de Santander: Loso, *Killip & Smith 20408* (N).—Santander: Bucaramanga, *Killip & Smith 15454* (A, G, N, Y), *16223* (A, BM, G, N, Y), *16340* (N, Y), *16344* (A, G, N, Y). Las Vegas, *Killip & Smith 15951* (A, G, N, Y). Florida, *Killip & Smith 16175* (A, G, N, V, Y). Suratá Valley, *Killip & Smith 16412* (N, Y), *16452* (A, G, N, Y), *16527* (A, G, N, Y). Below Páramo Rico, *Killip & Smith 17717* (N, Y). Below Páramo de Romeral, *Killip & Smith 18599* (N). El Roble, *Killip & Smith 19420* (A, G, N, Y).—Cundinamarca: Ubalá, *Triana 2934* (BM, type of *P. bifurca*, HNC, P).

As noted by Willdenow in describing the plant, the leaves of this species are quite variable. Willdenow's type specimen is most closely duplicated as to leaf shape by *Pittier 7570*. The lobation here is about one-third the blade, the lobes being nearly erect; the leaves are fully twice as long as broad. In one extreme, *Jahn 1072*, the leaves are nearly as broad as long, and are lobed only one-fifth. At the other extreme is *Fendler 484* in the Gray Herbarium, in which the leaves are lobed two-thirds the length of the blade, and the lobes are linear—less than 5 mm. wide—and somewhat divergent. The

latter specimen was cited by Masters as *P. furcata*, and certainly in shape of leaves bears slight resemblance to typical *P. cuneata*. However, in the Missouri Botanical Garden there is a sheet of *Fendler 484* with the typical leaves of *P. cuneata*.

This species was found to be quite common in the parts of the Eastern Cordillera of Colombia visited by Mr. Smith and myself, and showed the same marked variation in leaf shape. Sometimes the same plant had 3-lobed leaves with the central lobe the longest, 2-lobed leaves, with both erect, rather broad lobes as in typical *P. cuneata*, and narrow, divaricate lobes as in the form described as *P. furcata*. Likewise, individual plants had both glabrous and pilose ovaries.

The outer corona filaments are distinctly trigonous, though in dried specimens this is often scarcely discernible.

Passiflora luciensis I am unable to distinguish from *P. cuneata*. The leaves of the type specimen are essentially identical with typical forms of *P. cuneata* as represented by Viereck's specimens from the Santa Marta Mountains, Colombia. The occurrence of this species of the northern Andes on the island of St. Lucia is remarkable. Possibly the St. Lucia plant is a form of *P. Andersonii*, a little known species with transversely oblong leaves, or possibly *P. cuneata*, *P. Andersonii*, *P. luciensis*, and perhaps *P. rotundifolia* are forms of a polymorphic species of widespread distribution. The study of living material from the Lesser Antilles is necessary before finally adopting such a treatment, however.

72. **Passiflora lyra** Planch. & Linden ex Killip, Journ. Wash. Acad. Sci. 20: 377. 1930.

Stem sharply angular, puberulent; stipules setaceous, 5 to 10 mm. long, deciduous; petioles stout, up to 2.5 cm. long, glandless; leaves ovate-lanceolate or broadly ovate in general outline, 6 to 10 cm. along the midnerve, 6 to 12 cm. along the lateral nerves, 5 to 10 cm. wide, narrowed toward the apex, subtruncate, shallowly 2–3-lobed (lobes acute or acuminate, the sinus lunate), rounded at the base, subcoriaceous, shining and very dark green (when dry) and finely and sparsely puberulent above, reddish when dry and densely and softly tomentulous beneath, bearing 2 conspicuous, white, subcrustaceous glands in the angles of the nerves; flowers white, 3.5 to 4 cm. wide, borne on axillary branches up to 10 cm. long which bear much reduced leaves; bracts setaceous, about 5 mm. long; sepals lanceolate, about 1.5 cm. long and 5 mm. wide, subacute, petals

linear, about 5 mm. long and 2 mm. wide, very slender; corona filaments in 2 series, the outer filiform, 4 to 5 mm. long, slightly torulose, the inner capillary, 2 mm. long, capitellate; operculum membranous, slightly plicate, erect, irregularly lacerate to the middle, about 2 mm. high; limen annular; ovary ovoid, densely sericeous-pilose with brownish or whitish hairs.

TYPE LOCALITY: Cumbre de Valencia, Carabobo, Venezuela.

DISTRIBUTION: Northern Venezuela.

VENEZUELA: Aragua: Cloud forests of the Ocumare Valley, 800 meters, *Pittier 13958* (N).—Carabobo: Cumbre de Valencia, *Funck & Schlim 552* (Bo, Gen, P, type).

The leaves of this species are much like those of *P. chelidonea* in general outline, though less deeply lobed. The dense indument on the ovary and under surface of the leaves and the position of the flowers on short, axillary branches are the most obvious characters by which *P. lyra* may be distinguished from *P. chelidonea*. In Pittier's recent collection the leaves are proportionately broader.

73. **Passiflora talamancensis** Killip, Journ. Wash. Acad. Sci. 12: 260. 1922.

Stem angulate, striate, minutely puberulent; stipules linear-subulate, 3 to 8 mm. long; petioles 1 to 2 cm. long, puberulent or tomentellous, glandless; leaves cuneate-obovate or cuneate-oval in outline, 6 to 12 cm. long, 3 to 7 cm. wide, very shortly 3-lobed or 3-toothed at apex (middle lobe normally longest, 5 to 10 mm. long, usually deltoid), cuneate or rounded at base, narrowed above middle, subcoriaceous, glabrous and lustrous above, dull and puberulent beneath, strongly 3-nerved, ocellate beneath; peduncles slender, 2 to 4 cm. long; bracts setaceous, 2 mm. long, deciduous; flowers 2.5 to 3.5 cm. wide; sepals oblong, obtuse, about 1.5 cm. long, 0.5 cm. wide, green without, white within; petals two-thirds as long as the sepals, white; corona filaments in 2 series, those of the outer series falcate-ligulate, 5 to 7 mm. long, white(?), those of the inner series capillary, 1.5 mm. long, white, purple at tips; operculum close to the corona, membranous, plicate, 2 mm. long, erect, the margin minutely crenulate, slightly recurved; limen annular; ovary globose, densely tomentellous; fruit globose, about 1 cm. in diameter, villosulous; seeds ovate, 5 mm. long, 2 mm. wide, transversely rugose with 6 or 7 minutely rugulose ridges, asymmetrical, the margin bearing a single knob on one side just below the apex.

TYPE LOCALITY: Shirores, Talamanca, Costa Rica.

DISTRIBUTION: Eastern Costa Rica, up to 200 meters altitude.

COSTA RICA: Shirores, Talamanca, *Tonduz 9329* (Brux, N, type). Tsaki, *Tonduz 9593* (Bo, Brux, N). Carmen, Limón, *Standley & Valerio 48349* (N), *48364* (N).

This is a well marked species, quite unlike any other in Central America. The leaves are remotely suggestive of some forms of *P. cuneata*, but the lobes are acute. The flowers are very different from those of *P. cuneata*.

74. **Passiflora popayanensis** Killip, Journ. Wash. Acad. Sci. 20: 377. 1930.

Stem angular, compressed, tortuous, glabrous; stipules linear-setaceous, about 2 mm. long; petioles up to 1.5 cm. long, minutely pilosulous, glandless; leaves oblong or ovate-oblong, 5 to 7 cm. long, 3 to 3.5 cm. wide, bilobed a third to a half their length (lobes lanceolate, 2 to 2.5 cm. long, acuminate, mucronulate, the sinus truncate, often with a small, triangular, intermediate lobe present), rounded at base, 3-nerved, membranous, glabrous, dark green, usually paler along nerves above, glaucous beneath; peduncles slender, up to 3 cm. long, articulate just below apex; bracts setaceous, 2 to 4 mm. long, borne above middle of peduncle; flowers 3 to 3.5 cm. wide; sepals oblong-lanceolate, 1.2 to 1.5 cm. long, about 0.4 cm. wide, obtuse; petals spatulate, 6 to 7 mm. long, about 3 mm. wide, obtuse, reticulate-veined toward apex, white, the veins darker; corona filaments in 2 series, filiform, the outer 6 to 7 mm. long, the inner 4 to 5 mm. long; operculum slightly plicate, the margin minutely fimbrillate; nectar ring annular; limen cushion-like, closely surrounding the base of the gynophore; gynophore very slender; ovary ovoid, glabrous.

TYPE LOCALITY: Sotará Volcano, near Popayán, Colombia.

ILLUSTRATION: Engl. & Prantl, Pflanzenfam. ed. 2, 21: 499. *f. 230 C, D.*

DISTRIBUTION: Known only from the type locality, in southwestern Colombia.

COLOMBIA: El Cauca: Sotará Volcano, near Popayán, 2,400 to 2,900 meters, *Lehmann 3731* (B, Bo, K, N, type).

This collection is cited by Masters as *P. chelidonea* Mast. in a report on Lehmann's Passifloraceae (Bot. Jahrb. 8: 218. 1887) and is apparently the original of a detailed drawing of *"P. chelidonea"* (Engl. & Prantl, Pflanzenfam. ed. 2, 21: 499. *f. 230 C, D.* 1925). The thinner, more deeply lobed leaves (glaucous beneath), the longer

peduncles, more slender corona filaments, the two series of which are of nearly equal length, and the smaller flowers distinguish *P. popayanensis* from *P. chelidonea*. The ovary of the plant, moreover, is glabrous, that of *P. chelidonea* densely puberulent. The leaves resemble those of forms of *P. alnifolia*, which also grows in southern Colombia, but the corona filaments differ and the ovary is glabrous.

75. **Passiflora chelidonea** Mast. Gard. Chron. 12: 40. 1879.

Stem angulate, glabrous, scabrous; stipules narrowly linear, acuminate; petioles up to 2 cm. long, purplish; leaves oblong-lanceolate, up to 14 cm. long and 8 cm. wide, 2–3-lobed at apex (lateral lobes lanceolate, acute, suberect, the intermediate lobe very small), rounded or subcordate at base, coriaceous, glabrous; peduncles up to 2 cm. long; bracts setaceous, 4 to 6 mm. long, borne above middle of peduncle; flowers up to 5 cm. wide; sepals oblong-lanceolate, 2.5 cm. long, 1.2 cm. wide, light yellow-green and lustrous on both surfaces; petals 1.2 cm. long, 0.4 cm. wide; corona filaments in 2 series, the outer terete, tapering above middle, 1 cm. long, radiate, white, spotted with dull bluish violet at base, dull bluish violet at center, mustard-yellow at apex, the inner series grass-green, narrowly linear-clavate, 3 mm. long; operculum 2 mm. high, plicate with about 45 folds, grass-green; nectar ring annular; limen annular, 3 mm. high, fleshy, white, finely spotted externally with pink, the margin white; gynophore dark green, becoming purple; filaments reddish purple; styles deep purple; ovary green, short-strigillose; stigmas green; fruit globose, 1.5 cm. in diameter; seeds obovoid, about 4 mm. long, 2.5 mm. wide, transversely sulcate, the broken ridges 6 to 8.

TYPE LOCALITY: Mt. Corazón, Ecuador.

ILLUSTRATION: Gard. Chron. 12: 40. 1879.

DISTRIBUTION: Western Cordillera of Colombia and mountains of northern Ecuador; Eastern Cordillera of Colombia(?); between 1,600 and 3,000 meters altitude.

COLOMBIA: *Mutis 4411* (Ma, N). Anque, *Lehmann XIV* (Bo).—Santander: Below Páramo Santurbán, *Killip & Smith 17923* (A, G, N, Y). Charta, *Killip & Smith 19031* (A, G, N, Y).—Caldas: Río San Rafael, below Cerro Tatamá, *Pennell 10336* (N). Santuaria, *Pennell 10600* (G, N, Y).—El Valle: La Cumbre, *Pennell & Killip 5752* (G, N, Ph, Y).

ECUADOR: Pichincha: Quito, *André 1110* (K, Y). Plant cultivated in England, originally from Mt. Corazón (K, type); *André 1807*, in part (K).

In *Pennell 10336* the leaves are proportionately much narrower than in typical *P. chelidonea*, resembling those of *P. tribolophylla*, but since flowers are lacking it is impossible to determine positively to which species this specimen should be referred. The specimens from Santander in the Eastern Cordillera of Colombia, and *Mutis 4411*, probably also from the Eastern Cordillera, may represent another species with strikingly similar foliage. The flowers are not sufficiently developed for positive identification.

76. **Passiflora tribolophylla** Harms, Repert. Sp. Nov. 18: 297. 1922.

Stem densely and softly pilosulous; stipules setaceous, 4 to 5 mm. long; petioles 5 to 12 mm. long, glandless; leaves lanceolate, oblong-lanceolate, or linear-lanceolate in general outline, 3 to 12 cm. long, 1 to 4 cm. wide, 2–3-lobed (lateral lobes suberect, 12 mm. long, acute, the middle lobe equaling the lateral lobes or much reduced), rounded or shallowly cordate at base, 3-nerved, closely reticulate-veined, coriaceous, dull sea-green, lustrous and glabrous above, sub-lustrous and finely pilosulous beneath; peduncles 1.5 to 2.5 cm. long, articulate near apex; bracts setaceous, about 2 mm. long; sepals lanceolate, 1 to 1.5 cm. long, 5 to 7 mm. wide, obtuse, puberulent and green without, violet at base, white within; petals linear-oblong, subequal to sepals, white, violet at base; corona filaments in 2 series, the outer falcate-ligulate, 6 to 7 mm. long, greenish yellow, purple-banded, the inner capillary, about 3 mm. long; the operculum membranous, plicate, 3 mm. high; nectar ring a low ridge; limen cupuliform; ovary pilosulous.

TYPE LOCALITY: Western Cordillera, west of Popayán, Colombia.

DISTRIBUTION: Western Colombia, at elevations up to 1,700 meters.

COLOMBIA: Antioquia: Santa Elena, *Archer 1246* (N).—El Cauca: West of Popayán, 1,300 to 1,900 meters, *Lehmann 5420* (B, type, F, K, N; probably *B.T.859;* K, Y). La Gallera, Micay Valley, *Killip 7918* (N, Y).

The general outline of the leaves of this species suggests *P. chelidonea*. The outer corona filaments, however, are proportionately shorter and the stem densely pilosulous.

77. **Passiflora Dawei** Killip, Journ. Wash. Acad. Sci. 20: 375. 1930.

Stem triangular, striate, minutely puberulous, at length glabrate; stipules narrowly linear-falcate, 9 to 10 mm. long, 1 mm. wide;

petioles 3.5 to 4 cm. long, glandless; leaves broadly ovate-oblong in general outline, 8 to 10 cm. along midnerve, 10 to 14 cm. along lateral nerves, 8 to 10 cm. wide at middle, 6 to 7 cm. wide between the tips of the lobes, 2-lobed about a third their length (lobes lanceolate, acute, the sinus deeply sinuate, mucronulate at base), rounded or subtruncate at base, 3-nerved, ocellate beneath, subcoriaceous, essentially glabrous, bright green (when dry) on both surfaces; peduncles 5 to 7 cm. long, articulate about 1 cm. below apex; bracts narrowly linear, 5 to 6 mm. long, 0.5 to 1 mm. wide; flowers 4 to 5 cm. wide; sepals oblong-lanceolate, 2 to 2.5 cm. long, 0.8 to 1 cm. wide, obtuse, white within; petals similar to the sepals, about 1.5 cm. long and 0.9 cm. wide, pink-tinged; corona filaments in 2 series, the outer trigonous, about 1 cm. long, conspicuously dilated at and above middle, dark purple, the inner filiform, half as long, minutely capitellate, grass-green; operculum closely plicate; limen annular; ovary globose, densely white-pilose.

TYPE LOCALITY: Department of Cundinamarca, Colombia.

DISTRIBUTION: Southeastern Colombia.

COLOMBIA: Cundinamarca: *Dawe 57* (K, N, type).—Caquetá: Florencia, 420 meters, *Pérez 669* (N).

This species is distinguished from *P. chelidonea* by proportionately broader leaves, longer peduncles, larger bracts, and the shape of the outer corona filaments. It might be confused with *P. alnifolia*, a species common in the Central Cordillera of Colombia, but that has quite differently shaped outer corona filaments, shorter peduncles, and smaller leaves.

78. **Passiflora ichthyura** Mast. in Mart. Fl. Bras. 13, pt. 1: 587. 1872.

Stem compressed, striate, pulverulent; stipules linear-subulate, 4 to 5 mm. long, deciduous; petioles up to 3 cm. long, glandless; leaves oblong, 7 to 7.5 cm. long (midnerve), 10 to 11 cm. (lateral nerves), 9 to 10 cm. (between apices of lobes), bilobed (lobes ovate-oblong, 2 to 2.5 cm. wide, acute, often with an intermediate lobe, the sinus lunate or subtruncate), subcuneate at base, membranous, ocellate, glabrous above, pulverulent and stellate-glandular beneath; peduncles solitary or in pairs, 1.5 to 3 cm. long; bracts subulate; flowers about 3 cm. wide; sepals oblong, obtuse; petals shorter than the sepals, obtuse, white; corona filaments in 2 series, the outer narrowly liguliform, 7 to 9 mm. long, the inner filiform, about 2 mm.

long, capitellate; operculum membranous, slightly plicate, fimbrillate, inflexed; limen annular; ovary obovoid, glabrous.

TYPE LOCALITY: State of Goyaz, Brazil.

DISTRIBUTION: Bolivia and central Brazil.

BOLIVIA: La Paz: Antahuacana, 750 meters, *Buchtien 4651* (N).

BRAZIL: *Sello 2129* (B), *2149* (B).—Goyaz: *Gardner 3191* (K, type).

Gardner's type specimen shows no vestige of an intermediate leaf lobe, but in the Sello material and the Bolivian specimen this is rather strongly developed.

79. **Passiflora Candollei** Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 161, footnote. 1873.

Passiflora lunata Juss. ex DC. Prodr. 3: 331. 1828. Not *P. lunata* J. E. Sm. or P. & E.

Decaloba lunata M. Roemer, Fam. Nat. Syn. 2: 158. 1846.

Plant glabrous or usually finely pulverulent; stem angular, compressed, striate, subflexuous, glabrous below, finely pulverulent toward the apex; stipules linear-subulate, 5 to 7 mm. long, 1 to 1.2 mm. wide, falcate, acuminate, coriaceous; petioles up to 6 cm. long, glandless; leaves 5 to 10 cm. along midnerve, 7 to 15 cm. along lateral nerves, 7 to 15 cm. wide, bilobed (lobes lanceolate, 3 to 4 cm. long, 2.5 to 3.5 cm. wide at their base, acuminate, mucronulate, the sinus broadly lunate, with an intermediate lobe sometimes present, or the upper margin subtruncate), rounded at base, entire, conspicuously 3-nerved, reticulate, ocellate, coriaceous or subcoriaceous, bright green, shining, and glabrous above, dull and finely pulverulent or minutely pilosulous beneath; peduncles solitary or in pairs, up to 2 cm. long, articulate at middle; bracts setaceous, 2 to 3 mm. long, borne near middle of peduncle; flowers 3 to 5 cm. wide; sepals broadly oblong, 1.5 to 2 cm. long, 1 to 1.5 cm. wide, puberulent without, fleshy, light green without, white within; petals ovate-oblong, 8 to 12 mm. long, about 10 mm. wide, obtuse, white, pink-tinged; corona filaments in 2 series, the outer 8 to 10 mm. long, slender, subtrigonous, yellow, the inner filiform, 3 to 4 mm. long, minutely capitellate, light green; operculum closely plicate, light green; ovary globose, white-sericeous; fruit globose, 1.5 to 2 cm. in diameter, densely pilosulous; seeds obovate or obcordate, about 2 mm. long and 1.5 mm. wide, transversely sulcate with about 7 rugulose ridges.

TYPE LOCALITY: Peru.

DISTRIBUTION: Amazon basin of Peru and Bolivia; frequent up to 700 meters altitude, ascending to 1,100 meters in the Department of Huánuco.

PERU: *Dombey 742* (B, Gen, Ma, P, type); *Pavón* (B, BM, Bo, Gen, P). Hacienda Chalhuapuquio, *Stevens 146* (N).—Amazonas: Chachapoyas, *Mathews* (BM, Bo, Gen, K, Y).—Loreto: Iquitos, *Killip & Smith 27143* (N), *27438* (N); *Klug 1306* (F, N); *L. Williams 8070* (N). Río Itaya, *Killip & Smith 29375* (F, N, Y), *29503* (F, N, Y), *29693* (F, N, Y), *29734* (F, N, Y), *29735* (N); *Tessmann 5273* (B, Bas). Mouth of Río Santiago, *Tessmann 4942* (B). Lower Río Huallaga, *Killip & Smith 27825* (F, N, Y); *L. Williams 4175* (N). Fortaleza, *Klug 2788* (F, Gen, N). Río Paranapura, *Klug 3945* (N). Mishuyacu, *Klug 1581* (F, N).—Huánuco: Pampayacu, *Macbride 5123* (F, N). Chinchao, *Ruiz & Pavón* (Ma).—Junín: La Merced, *Killip & Smith 23517* (N, Y). Colonia Perené, *Killip & Smith 25000* (F, N, Y). Puerto Yessup, *Killip & Smith 26308* (F, N, Y). Puerto Bermúdez, *Killip & Smith 26607* (N, Y).

BOLIVIA: Beni: Río Chaparé, *Werdermann 2164* (B, S).

De Candolle assigned a manuscript name of Jussieu's, *P. lunata*, to this Peruvian plant, overlooking the earlier use of the name by several authors. Many of the specimens listed above, that were seen in European herbaria, bear various names; the Mathews plant was cited by Masters as *P. indecora* HBK., a wholly different species.

Perhaps this is too closely related to *P. ichthyura*. In that species the leaves are noticeably longer than broad, with a cuneate base, and the indument on their under surface is very dense.

80. **Passiflora yucatanensis** Killip, Field Mus. Bot. 8: 26. 1930.

Stem 4–5-angulate, striate, puberulent; stipules falcate-subulate, 2 to 3 mm. long, 0.5 mm. wide; petioles 1 to 1.5 cm. long, puberulent, glandless; leaves variable, truncately 2–3-lobed at apex (4 to 5 cm. long, 6 to 8 cm. wide) or deeply 2-lobed, with an obsolescent intermediate middle lobe (2 to 4 cm. along midnerve, 5 to 8.5 cm. along lateral nerves, 6 to 10 cm. between apices of lobes; lobes rounded at apex), rounded or truncate at base, ocellate beneath, membranous or subcoriaceous, glabrous above, minutely puberulous beneath, especially at margin; peduncles solitary, about 3 cm. long, slender; bracts setaceous, 1 to 2 mm. long, borne about 5 mm. below flower; flowers 2.5 to 3.5 cm. wide; sepals oblong-lanceolate, 1.3 to 1.6 cm. long, 4 mm. wide, obtuse; petals oblong-lanceolate, 8 to 9 mm. long, 4 mm. wide, obtuse; corona filaments in 2 series, the outer 4 to 5 mm.

long, erect, 3-angled, slightly dilated at middle, the inner capillary, 2 mm. long; operculum membranous, plicate, incurved, minutely fimbrillate; gynophore 1 to 1.2 cm. long, slender, striate; ovary narrowly ovoid, densely white-villous.

TYPE LOCALITY: Cozumel Island, Yucatán, Mexico.

DISTRIBUTION: Yucatán, Mexico.

MEXICO: Yucatán: *E. P. Johnson* (Y). Cozumel Island, *Gaumer 101* (F, type, G, N).

The type collection of this species was reported (Field Mus. Bot. 1: 134. 1895) as "*Passiflora Andersonii* DC.?," a plant of the islands of St. Lucia and Dominica, related to *P. rotundifolia* and quite distinct from *P. yucatanensis*. The foliage of *P. yucatanensis* suggests that of forms of *P. biflora*, but the species has relatively longer, reflexed outer corona filaments, a shorter and thicker gynophore, and much shorter peduncles.

81. **Passiflora punctata** L. Sp. Pl. 957. 1753.

Decaloba punctata M. Roemer, Fam. Nat. Syn. 2: 156. 1846.

Plant glabrous throughout; stem subtriangular, compressed, striate; stipules linear-falcate, 3 to 5 mm. long, subpersistent; petioles 3 to 6 cm. long, slender, glandless; leaves transversely oblong in general outline, 2 to 5 cm. along midnerve, 3 to 7 cm. along lateral nerves, 6 to 12 cm. between apices of lobes, truncate and very shallowly 3-lobed at apex or rather conspicuously bilobed (lobes broadly rounded and emarginate, rarely acutish, minutely mucronulate), truncate or subcordate at base, 3 (or obscurely 5)-nerved, thin-membranous, glaucescent beneath; peduncles 5 to 8 cm. long, very slender, articulate about 1 cm. from apex; bracts setaceous, 1 to 2 mm. long, scattered, deciduous; flowers 2.5 to 4 cm. wide; calyx tube campanulate, 10-sulcate; sepals oblong-lanceolate, 1.5 to 1.8 cm. long, 0.8 to 1 cm. wide at base, obtuse, hyaline at margin, light yellow-green and slightly lustrous externally, duller internally; petals oblong-lanceolate, 1 to 1.2 cm. long, 4 to 6 mm. wide, recurved, greenish white; corona filaments in 2 series, the outer liguliform, falcate, flat, dilated near middle, 7 to 10 mm. long, up to 1.5 mm. wide (the 4 or 5 filaments opposite the sepals, erect at base, the apices recurved, the 2 or 3 opposite the petals incurved from the base), pale yellow-green at apex, varying from deep purple to pale magenta at center, white at base, the inner series of filaments filiform, 4 to 5 mm. long, capitellate, purplish; operculum membranous, plicate, 3 to 4 mm. high, incurved and minutely denticulate at apex, purple and white; limen

a narrow ridge, white, purple-maculate, undulate at margin; gynophore slender, deep purple below, white above; ovary narrowly ovoid or ellipsoidal, brownish- or whitish-puberulent or villosulous; fruit ellipsoidal, 2 cm. long (not fully developed)); seeds ovate, about 3 mm. long, 2.5 mm. wide, transversely 6-sulcate, the ridges rugulose.

TYPE LOCALITY: Peru (based on a Feuillé plant from a garden at Malambo, then a suburb of Lima).

ILLUSTRATIONS: Amoen. Acad. 1: *pl. 10, f. 12;* Cav. Diss. 10: *pl. 269;* Poepp. & Endl. Nov. Gen. & Sp. 2: *pl. 178;* Bot. Mag. 132: *pl. 8101.*

DISTRIBUTION: Specimens examined from a wide area (Panama to central Peru and Bolivia), many of them certainly from plants in cultivation; perhaps native in Ecuador and northern Peru.

PANAMA: *Duchassaing* in 1851 (P); *Hayes* 596 (Y).

COLOMBIA: El Valle: La Manuelita, near Palmira, cultivated, *Pennell & Killip 6173* (G, N, Ph, Y). Buga, cultivated, *Lehmann 801* (Bo), *3049* (B, Bo, K, N). Cartago, *Lehmann 4615* (B, K), *B.T.1123*, in part (K); *André 4143* (K), *4143bis* (K).—Nariño: Naranjo, *André 78*, in part (Y).

ECUADOR: *Eggers 15270* (F). Ayabamba, *Lehmann 4832* (Gen, K).—Manabi: El Recreo, *Eggers 15582* (B, F, K, N, P).—Guayas: Guayaquil, *Fraser* (BM); *Née* (Ma); cultivated, *Mille 200* (N); *Hall* (K). Naranjito, *Sodiro* in 1908 (N).

PERU: *Pavón* (B, BM, Bo, Gen, P); *Dombey 736* (B, Gen, P); *"Richard"* (BW).—Túmbez: Hacienda Chicama, *Weberbauer 7637* (F).—San Martín: Tarapoto, *L. Williams 5922* (N).—Libertad: Chinchín, *Née* (Ma).—Lima: Lima, cultivated, *Killip & Smith 21527* (F, N, Y); *Née* (Ma). Barrana, *Wawra 527* (V).—Cuzco: Santa Ana Valley, *Herrera 941* (B).

BOLIVIA: *D'Orbigny 563* (P).

From *P. biflora* this is distinguished by its longer, very slender peduncles, which are usually solitary, its thinner leaves, and its longer, predominantly purple or blue, rather than yellow, outer corona filaments, which are flat, not trigonous. The leaves are less variable than in the case of *P. biflora*, being always much broader than long and of nearly uniform lobation. The flower details here given are based on *Pennell & Killip 6173*.

The two Brazilian collections cited by Masters as *P. punctata* are better referred to other species. A specimen in the Linnean Her-

barium labeled "*punctata*" by Linnaeus but not at hand in 1753 is *P. biflora*.

LOCAL NAME: "Norbo" (Peru).

82. **Passiflora biflora** Lam. Encycl. 3: 36. 1789.

Passiflora lunata J. E. Smith, Icon. Pl. Rar. 11: *pl. 1*. 1790; Willd. Sp. Pl. ed. 4, 3: 612. 1800. Not *P. lunata* Juss., or Vell., or Poepp. & Endl.

Passiflora glabrata HBK. Nov. Gen. & Sp. 2: 135. 1817.

Cieca glabrata M. Roemer, Fam. Nat. Syn. 2: 143. 1846.

Decaloba biflora M. Roemer, Fam. Nat. Syn. 2: 161. 1846.

Decaloba biflora var. *major* M. Roemer, Fam. Nat. Syn. 2: 161. 1846.

Decaloba biflora var. *mexicana* M. Roemer, Fam. Nat. Syn. 2: 161. 1846.

Passiflora lunata var. *costata* Mast. in Mart. Fl. Bras. 13, pt. 1: 552. 1872.

Passiflora spathulata Mast. in Mart. Fl. Bras. 13, pt. 1: 552. 1872.

Passiflora Brighami Wats. Proc. Amer. Acad. 21: 473. 1887.

Passiflora normalis L. sensu Sessé & Moc. Pl. Nov. Hisp. 155. 1887. Not *P. normalis* L.

Passiflora transversa Mast. Bot. Gaz. 16: 7. 1891.

Stem 5-angled, strongly grooved, more or less tortuous, green or purplish, glabrate; stipules narrowly linear-subulate or setaceous, often subfalcate, 1.5 to 3 mm. long; petioles 0.5 to 1 cm. long or those of the lower leaves occasionally up to 3 cm., glandless, glabrate or minutely puberulent; leaves extremely variable in outline, transversely linear or transversely oblong to suborbicular (ranging from 0.8 cm. long and 8 cm. wide to 10 cm. long and 10 cm. wide), or 2-lobed with an intermediate third lobe frequently present (lobes acuminate or rounded, usually apiculate, lanceolate or ovate, widely divergent or subapproximate, often one-half the length of the blade, usually much less), truncate, rounded, subcordate, or cuneate at base, 3-nerved (a secondary pair of nerves arising near the apex of the midnerve), reticulate-veined (nerves and veins conspicuous), glabrous above, glabrous or minutely puberulent beneath, ocellate with about 4 pairs of ocellae, coriaceous or subcoriaceous; peduncles in pairs, usually from 1 to 1.2 cm. long, rarely the lower up to 3 cm., articulate slightly above middle; bracts setaceous, 2 mm. long; flowers 2.5 to 3.5 cm. wide; sepals ovate-lanceolate, 9 to 12 mm. long,

5 to 7 mm. wide, obtuse, green and puberulent or glabrate without, white and glabrous within; petals about 8 mm. long, 5 mm. wide, white; corona filaments in 2 series, the outer 3-angled, dilated near middle, about 7 mm. long, yellow, the inner filiform, about 5 mm. long; operculum membranous, closely plicate, the margin incurved; limen annular; gynophore 5 to 8 mm. long; ovary subglobose or ovoid, terete or angled, glabrate, puberulent, or densely tomentose; fruit globose or subglobose, 1 to 2 cm. in diameter, glabrous to densely puberulent; seeds obovoid, 2.5 to 3 mm. long, 2.5 mm. wide, transversely sulcate with 6 or 7 ridges, the ridges parallel, or the uppermost and lowermost curved.

TYPE LOCALITY: "L'Amérique méridionale," and the type a cultivated plant.

ILLUSTRATIONS: Martyn, Hist. Pl. Rar. *pl. 50.* 1728; Cav. Diss. 10: *pl. 288;* J. E. Sm. Icon. Pict. 1, pt. 1: *pl. 1;* Trans. Linn. Soc. 2: *pl. 5;* Andr. Rep. 10: *pl. 657;* Lodd. Bot. Cąb. 2: *pl. 181;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 22, f. 7, pl. 23, f. 2;* Bot. Reg. 7: *pl. 577;* Bot. Mag. 49: *pl. 2354;* Mutis, Icon. Pl. Ined. 26: *pl. 20.*

DISTRIBUTION: Mexico to Colombia and Venezuela; also in the Bahamas. A common plant, from sea level to 1,500 meters altitude. An André specimen (*No. 4143*, in part) from Guayaquil, Ecuador, which I have not seen is reported as this by Masters (Journ. Linn. Soc. 20: 38). The other element of this number, from Cartago, Colombia, is *P. punctata.*

"AMERICA": (BW, type of *P. lunata* Willd.). "L'Amérique méridionale," *Herb. Lamarck* (P, type).

MEXICO: *Schaffner 553* (B); *Sessé & Mociño 3302* (Bo, Ma, type of "*P. normalis*" Sessé & Moc.), *4456* (Ma).—Tamaulipas: *Berlandier 114* (Gen).—Sinaloa: San Blas, *Wright 1342* (G).—San Luis Potosí: Las Palmas, *Pringle 5365* (G), *5762* (G, N).—Jalisco: San Sebastián, *Mexia 1529* (N), *1916* (N).—Hidalgo: Ixmiquilpán, *Purpus* in 1905 (Cal).—Veracruz: *Houston* (BM, type of *P. lunata* J. E. Sm.); *Schnee* in 1894 (P); *Hahn 41* (P), *48* (P); *Gouin* in 1866 (P); *Liebmann 4142* (Cop). Trapiche de La Concepción, *Liebmann 4108* (Cop), *4135* (Cop). Misantla, *Liebmann 4110* (Cop). Palugue, *Liebmann 4109* (Cop). Cagadero, *Liebmann 4107* (Cop). San Sebastián, *Liebmann 4106* (Cop). San Miguel, *Liebmann 4111* (Cop). Mirador, *Liebmann 4141* (*Passiflora* No. 14; Cop, type of *P. spathulata,* N). Orizaba, *Müller* (Y); *Bourgeau 2718* (P); *Seaton 504* (G). Córdoba, *Bourgeau 2099* (Bo, Brux, G, K, P, S). Zacuapan, *Purpus 2066* (Cal, Mo, N),

7495 (Y), *7496* (Cal, N), *8905* (Cal), in 1923 (N); *Seler 5131* (N); *Galeotti 3662* (Brux). Tampico, *Palmer 416* (G, N).—Guerrero: Acapulco, *Palmer 616* (F, N).—Oaxaca: *Ghiesbreght 80* (P). Plunia, *Nelson 2477* (G, N), *2481* (N).—Tabasco: San Juan Bautista, *Rovirosa 102* (N, Ph).—Chiapas: Zuluzu, *Linden* (Gen, P). Tapachula, *Van Ufford 33* (Ut).—Campeche: Tuxpeña, *Lundell 1351* (Mich, N).

GUATEMALA: Tactic, *Lehmann 1422* (Bo, K). Río Chocón, *Watson 97* (G, type of *P. Brighami*). Jinotepe, *Friedrichsthal 1188* (V, type *P. lunata* var. *costata*).—Petén: Uaxactún, *Bartlett 12360* (Mich), *12510* (Mich, N). El Paso, *Lundell 1490* (Mich).—Alta Verapaz: Cubilquitz, *Türckheim 8218* (N).—Quezaltenango: Colomba, *Skutch 2044* (N).—Izabal: Quiriguá, *Standley 24210* (N). Livingston, *Deam 66* (G).—Escuintla: San Juan Mixtán, *J. D. Smith 2083* (N). Masaqua, *J. D. Smith 2099* (G, K, type of *P. transversa*, N).

HONDURAS: Tela, *Standley 53575* (N), *55291* (N), *56827* (N). San Pedro Sula, *Thieme 5245* (N). Laguna Quemada, *Wilson 626* (Y), *628* (N).

BRITISH HONDURAS: *Gentle 346* (Mich). Toledo, *Peck 505* (G). El Cayo, *Bartlett 11446* (N), *12025* (N), *12074* (N). Belize River, *Lundell 3835* (N), *3840* (N). Belize, *Lundell 1837* (N), *1944* (N), *7088* (N); *Gentle 3* (Mich). La Libertad, *Lundell 2271* (Mich), *2272* (Mich), *3400* (N); *Aguilar 165* (N). Northern River, *Gentle 877* (N). Corozal, *Gentle 378* (Mich, N), *820* (N). New River, *O'Neill 8802* (CU).

SALVADOR: Sonsonate, *Standley 21953* (N).

NICARAGUA: Managua, *Maxon 7458* (N). Chontales, *R. Tate 110* (K), *112* (K).

COSTA RICA: *Pittier 1224* (Bo), *3908* (Brux); *Tonduz 8467* (Brux). Alajuela, *Pittier 538* (Brux); *Tonduz 7307* (Brux). Puntarenas, *Pittier 497* (Brux); *Tonduz 1704* (Brux). Limón, *Tonduz 14844* (Gen); *Standley 36684* (N), *37016* (N). Guápiles, *Standley 37370* (N). San Juan, *Tonduz 9777* (N). Alajuelita, *Tonduz 9081* (Brux, N). Juan Viñas, *Tonduz 10417* (N); *Calvert* in 1909 (Ph). Turrialba, *J. D. Smith 6528* (N); *Tonduz 8396* (Brux). Tuis, *Pittier* (*Tonduz*) *12292* (B, G, K, N, P, Y). Nicoya, *Tonduz 13851* (N). Hacienda Robles, *Pittier 1673* (B, BM, Bo, Brux, N). Las Pavas, San José, *Standley 36087* (N); *Pittier 3671* (N). Río Changuinola, *Stork 276* (N). Cartago, *Oersted* (Cop). Ugares, *Oersted 4105* (Cop). La Estrella, *Standley 39355* (N). Dulce Nombre, *Standley 35823* (N).

Pejivalle, *Standley 46833* (N). Orosi, *Standley 39820* (N). San Ramón, *Brenes 6158*, in part (F).

PANAMA: *Duchassaing* in 1851 (B, P); *Sinclair* (K); *Née* (Ma).—Chiriquí: El Boquete, *Killip 3608* (Roch). David, *Killip 3640* (Roch).—Coclé: Penonomé, *R. S. Williams 226* (Y).—Canal Zone: Chagres, *Fendler 121* (F, G, K, N). Ancón, *Pittier 2578* (N); *Killip 12107* (N); *Blancher* in 1922 (N). Culebra, *Pittier 2091* (N); *Standley 25982* (N). Empire, *Piper 5520* (N). Fort Sherman, *Standley 31040* (N), *31184* (N); *Stevens 1046* (N). Lion Hill, *Hayes 601* (BM, K). Frijoles, *Piper 5806* (N). Barro Colorado Island, *Bailey & Bailey 311* (N).—Colón: Porto Bello, *Billberg 293* (S); *Pittier 2461* (N). Catival, *Standley 30349* (N).—Panama: Las Sabanas, *Standley 25834* (N), *29802* (N). Taboga Island, *Standley 27844* (N); *Pittier 3607* (N).

BAHAMAS: *Brace 487* (Y). Great Cistern, *Brace 1762* (F, Y). Pigeon Cay, *Brace 1664* (F, Y). Marsh Harbor, *Brace 1809* (Y). Eleuthera Island, *Fairchild 30* (N).

VENEZUELA: Federal District: La Guayra, *Otto 474* (B, V); *André 154* (K).—Mérida: *Moritz 1315* (BM). Tovar, *Pittier 12764* (N).—Táchira: Capacho, *Archer 3182* (N).

COLOMBIA: *Lehmann B.T.1123* in part (Y); *Triana* (N).—Magdalena: Mamatoca, *H. H. Smith 1597* (B, CM, F, G, K, N, P, Ph, Y), *1956* (Y). "Santa Marta, Jamaica," *Purdie* (K).—Bolívar: Turbaco, *Humboldt & Bonpland* (B, type of *P. glabrata*, P); *Killip & Smith 14650* (A, G, N, Y). Cartagena, *Dawe 890* (K, Y).—Norte de Santander: Chinácota, *Killip & Smith 20868* (G, N, Y). Cúcuta, *Killip & Smith 21012* (A, N).—Cundinamarca: Tequendama, *Triana 2945* (HNC, P). La Esperanza, *Cuatrecasas 3243* (Ma). Guaduas, *Karsten* (V).—Tolima: Honda, *Goudot* (P). Mariquita, *Oslo 474* (V). Timiná, *Lehmann 2291* (Bo). Socononzo, *Dawe* in 1919 (K).—Caldas: San José, *Pennell 10245* (N).—El Valle: La Cumbre, *Killip & Hazen 11146* (G, N).—Nariño: Naranjo, *André 78*, in part (Y).

The specimens cited above show great diversity in leaf form, degree of pubescence on the ovary, and size of fruit. It is impossible, however, to segregate any species or even to recognize any well defined varieties. These variants are probably best considered races of a single, widely distributed species. The outer filaments of the corona are in every case trigonous and dilated just above their middle; the stem and leaves are glabrous or sometimes minutely puberulent.

The report of this species as occurring in Jamaica on the basis of a Purdie specimen is clearly an error. This collection, at Kew,

bears the data "May 1844, Santa Marta, Jamaica," and some commentator has noted on the sheet that Purdie left Jamaica in April, 1844, and arrived in Santa Marta, Colombia, in May. In the Swartz Herbarium there is a sheet of *P. biflora* labeled "Ind. Occ."; there is a possibility that this specimen came from Jamaica, but I doubt that it did. Many specimens from other parts of South America have been referred to *P. biflora*, but all these which I have examined prove to be *P. punctata*, *P. Candollei*, *P. vespertilio*, or some other species of this relationship.

The earliest illustration of this species is in Martyn's work, published in 1728, and it was based upon a plant grown in the Chelsea Gardens, England, from seeds sent from Veracruz by Houston. Linnaeus cited this plate under *P. vespertilio*. However, in view of Linnaeus' other citations and the figure in the *Amoenitates*, it is clear that the name *P. vespertilio* should be applied to the plant common in the Guianas.

In proposing *P. biflora*, Lamarck cited the Martyn reference, though the specimen upon which he based the description was from a plant in cultivation at Paris of "Amérique méridionale" origin.

LOCAL NAMES: "Camacarlata," "calzoncillo" (Central America); "ala de murciélago" (Salvador); "sandía cimarróna" (Costa Rica); "guate-guate" (Panama); "parche" (Venezuela).

83. **Passiflora glaucescens** Killip, sp. nov.

Planta glaberrima, ovario puberulo excepto; stipulae setaceae; petioli eglandulosi; folia transverse oblonga, breviter trilobata, lobis rotundatis vel truncatis, membranacea, subtus glaucescentia; bracteae setaceae; sepala petalaque linearia; coronae filamenta biseriata, exteriora clavato-dolabriformia, interiora filiformia; operculum plicatum; fructus globosus.

Plant glabrous throughout except the ovary; stem subtriangular, striate; stipules setaceous, about 1.5 mm. long; petioles very slender, 1 to 2 cm. long, glandless; leaves transversely oblong in general outline, shallowly 3-lobed (the lateral lobes rounded, slightly emarginate, the middle lobe truncate, emarginate), 3 to 5 cm. along the midnerve, 3.5 to 6.5 cm. along the lateral nerves, 5 to 9 cm. wide, rounded or truncate at base, membranous, glaucescent beneath; peduncles in pairs, 2 to 3 cm. long; bracts dissitate in upper half, setaceous, about 2 mm. long; flowers 2 to 2.5 cm. wide, purplish red(?); sepals linear, about 1 cm. long, 3.5 to 4 mm. wide, obtuse; petals linear, about 1 cm. long, 4 to 5 mm. wide, obtuse; corona

filaments in 2 series, the outer clavate-dolabriform, about 3 mm. long, 0.8 mm. wide at apex, purplish red(?), the inner filiform, about 2 mm. long; operculum plicate, 2.5 mm. high, incurved, minutely crenulate; limen annular; ovary globose or subglobose, grayish-puberulent; fruit globose, about 1 cm. in diameter.

Type in the herbarium of the British Museum (Natural History), collected in Brazil by F. Sello (*No. 894*).

In leaf shape this species resembles rather closely forms of *P. punctata*, and certainly it is closely related to that species. The peduncles are much shorter, the sepals and petals narrower, and the outer corona filaments are of a different shape.

84. **Passiflora anadenia** Urban, Symb. Ant. 3: 323. 1902.

Stem wiry, subterete, glabrous or minutely appressed-pilosulous; stipules linear-subulate, 5 to 6 mm. long, persistent; petioles 2 to 5 mm. long, glandless; leaves bilobed to within 8 mm. of base (lobes linear, 3 to 7 cm. long, 0.1 to 0.4 cm. wide, obtuse, apiculate, divaricate at 45 degrees, or less, from midrib, a small intermediate lobe or cusp usually present in sinus), cuneate at base, prominently 3-nerved, revolute at margin, coriaceous, minutely hispidulous above, glabrous beneath; peduncles solitary or in pairs in the axils of the leaves, 8 to 12 mm. long, articulate near apex; bracts linear-subulate, 3 to 4 mm. long, borne below middle of peduncle; flowers up to 2.5 cm. wide, greenish; sepals lanceolate, about 10 mm. long, 2.5 mm. wide, obtuse; petals lanceolate, 5 to 7 mm. long, about 2.5 mm. wide; corona filaments in 2 series, filiform, the outer 8 to 10 mm. long, the inner barely 1 mm.; operculum membranous, plicate, incurved, incised-dentate, the teeth triangular; limen annular, close to base of gynophore; ovary globose, glabrous; fruit globose, about 1 cm. in diameter.

TYPE LOCALITY: Pétionville, Haiti.

DISTRIBUTION: Haiti, up to 600 meters altitude.

HAITI: Pétionville, *Picarda 1174* (B, type); *Leonard 4996* (B, G, N). Port au Prince, *Leonard & Leonard 15760* (N), *15765* (N). Morne à Cabrits, *Ekman 2255* (B, S). Ennery, *Ekman 2470* (B, S); *Leonard 8058* (N), *8859* (N), *8932* (N), *8964* (N), *10040* (N), *10044* (N). St. Michel de l'Atalaye, *Leonard 7405* (N), *7410* (N).

This species is at once recognized among Haitian plants by its very narrow, revolute leaf lobes. The following two species, from Cuba, are closely related to it.

85. **Passiflora stenoloba** Urban, Repert. Sp. Nov. 22: 40. 1925.

Plant glabrous throughout; stem angulate, striate; stipules lanceolate-linear, about 2 mm. long; petioles up to 3 mm. long, glandless; leaves bilobed to within 4 mm. of base (lobes linear, 3.5 to 6 cm. long, 1 to 2.5 mm. wide, acute, revolute at margin, a middle lobe sometimes present as a cusp 1 to 3 mm. long), subcoriaceous, brittle; peduncles in pairs in the axils of the leaves, up to 2.5 cm. long, filiform, articulate near apex; bracts borne at point of articulation of peduncle; flowers purple-violet; sepals and petals lanceolate-linear, "17 mm. long"; corona filaments in 2 series(?), filiform, "11 mm. long"; operculum plicate, the margin subentire, densely papillose; limen annular.

TYPE LOCALITY: Sierra de Nipe, Cuba.

DISTRIBUTION: Known only from the type locality, in eastern Cuba.

CUBA: Oriente: Sierra de Nipe, 975 meters, *Ekman 3116a* (B, type, S).

This species is similar to *P. anadenia*, particularly in the long, narrow leaf lobes. The Haitian plant, however, has longer stipules and peduncles, bracts borne near the base of the peduncle, smaller flowers, and a differently margined operculum. The differences between *P. stenoloba* and *P. nipensis*, as noted in the key, are chiefly those of dimension.

86. **Passiflora nipensis** Britton, Bull. Torrey Club 44: 17. 1917; Urban, Repert. Sp. Nov. 22: 41. 1925.

Passiflora intermedia Urban, Repert. Sp. Nov. 22: 40. 1925.

Plant glabrous throughout; stem wiry, slightly angulate, striate; stipules setaceous, 2 to 3 mm. long; petioles up to 6 mm. long, glandless; leaves bilobed one-half (or slightly more) their length, 0.5 to 1 cm. along midnerve, 1.5 to 3 cm. along lateral nerves, 1.5 to 2.5 cm. between apices of lobes (lobes lanceolate, 3 to 7 mm. wide, acute, mucronulate, the middle lobe oblong, up to 1.5 cm. long, or reduced to a short cusp), cuneate at base, slightly revolute at margin, strongly 3-nerved (2 or 3 secondary nerves present), inconspicuously few-veined, subcoriaceous; peduncles solitary or usually in pairs, 1 to 2 cm. long, very slender, articulate; bracts setaceous, borne at point of articulation of peduncle, 0.5 mm. long, deciduous; flowers purplish when dry; sepals linear-lanceolate, about 15 mm. long, 4.5 mm. wide, subobtuse; petals 2 mm. wide at base; corona filaments in 2(?) series, the outer filiform, 1 cm. long; operculum membranous, plicate,

irregularly crenulate and minutely papillose; fruit globose, about 1 cm. in diameter; seeds oblong, 2 mm. long, 1.5 mm. wide, transversely about 5-sulcate.

TYPE LOCALITY: Sierra de Nipe, near Woodfred, Cuba, altitude 500 to 650 meters.

DISTRIBUTION: Eastern Cuba, between 500 and 1,000 meters altitude.

CUBA: Oriente: Sierra de Nipe, *Shafer 3554* (Y, type); *Ekman 3116b* (S), *3174* (S). Monte Libanón, *Ekman 10293* (B, type of *P. intermedia*, S).

The type specimen consists of foliage and a single fruit only. Flowering material has recently been collected by Ekman, and Urban has thus been able to supplement the original description.

Passiflora intermedia seems to differ from *P. nipensis* only in the slightly narrower leaf lobes, with a development of the intermediate lobe. The type specimen of *P. nipensis* does not permit diagnosis of a flower, and it is impossible to say positively that the two are the same. In this group of *Plectostemma* the degree of development of the middle lobe varies so greatly within a species, or even in the case of individual plants, that this character alone hardly warrants the recognition of distinct species.

87. **Passiflora bilobata** Juss. Ann. Mus. Hist. Nat. 6: 107. 1805.

Astephananthes bilobata Bory, Ann. Gén. Sci. Phys. Brux. 2: 138. 1819 (as *Asephananthes*).

Tacsonia bilobata Spreng. Syst. Veg. 3: 44. 1826.

Cieca bilobata M. Roemer, Fam. Nat. Syn. 2: 146. 1846.

Stem angulate, striate, purplish with age, glabrous or finely pilosulous; stipules linear-subulate, 2 to 5 mm. long; petioles 5 to 10 mm. long, glandless; leaves bilobed about two-thirds their length, 0.5 to 1.5 cm. (midnerve), 2.5 to 7 cm. (lateral nerves), 2 to 7 cm. between apices of lobes (lobes linear to linear-oblong, 0.5 to 1.5 cm. wide, usually broadest at apex, sometimes emarginate), rounded at base, slightly revolute, coriaceous or subcoriaceous, lustrous and scabrellous above, dull, glabrous beneath; peduncles solitary or in pairs, 0.8 to 3 cm. long, slender, articulate just below apex; bracts linear-subulate, 2 to 3.5 mm. long, borne near base of peduncle; flowers up to 1.5 cm. wide, greenish yellow; sepals ovate-lanceolate, 6 to 8 mm. long, 3 to 4 mm. wide, slightly keeled near apex; petals linear, 4 to 6 mm. long, 3 mm. wide, obtuse, membranous; corona

filaments in 2 series, filiform, the outer about 8 mm. long, the inner 2 to 3 mm. long; operculum plicate, dentate, the teeth triangular; limen annular; ovary subglobose, glabrous; fruit globose, about 1 cm. in diameter; seeds oblong, 2 to 2.5 mm. long, about 1.5 mm. wide, transversely sulcate, the ridges dark, about 6.

TYPE LOCALITY: "Saint-Domingue."

ILLUSTRATIONS: Ann. Mus. Hist. Nat. 6: *pl. 37, f. 2;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 22, f. 5.*

DISTRIBUTION: Hispaniola and Puerto Rico.

HAITI: Trou d'Eau, 600 meters, *Ekman H2256* (S).

DOMINICAN REPUBLIC: *Poiteau* (P, type). Barahona, *Fuertes* in 1912 (B).

PUERTO RICO: *Read* (B). Peñón, *Shafer 1995* (Y).

This species was placed by Bory in a monotypic genus *Astephanthes* because of Jussieu's statement, rather doubtfully expressed, that the flowers were without a corona. I have not dissected the flowers of the type specimen but am convinced that it is conspecific with material collected by Ekman in excellent condition and with the other specimens listed above. These all are petaliferous, though Jussieu described the flowers likewise as apetalous.

This entire group of West Indian *Passiflora*, including *P. bilobata*, *P. bicrura*, *P. anadenia*, *P. Ekmanii*, *P. stenoloba*, and *P. nipensis*, may represent a single species with extremely variable leaves.

88. **Passiflora bicrura** Urban, Symb. Ant. 3: 323. 1902.

Stem strongly compressed, striate, purplish with age, glabrous or minutely pilosulous; stipules linear-subulate, 2 to 4 mm. long, often glandular-puberulent; petioles 5 to 10 mm. long, glandless; leaves bilobed to middle, 2 to 4 cm. along midnerve, 5 to 7 cm. along lateral nerves, up to 7 cm. between apices of lobes (lobes oblong-lanceolate, 1.5 to 2.5 cm. wide, broadly rounded at apex, the sinus rounded at base or with a short or more or less developed intermediate lobe), rounded at base, subcoriaceous, lustrous and glabrous above, dull and pilosulous beneath, especially on the nerves and veins; peduncles solitary or in pairs, borne on short, leafless branchlets, 0.8 to 3 cm. long, slender, articulate just below apex; bracts linear-subulate, 2 to 3 mm. long, slightly glandular-puberulent, borne near base of peduncle, persistent; flowers up to 2 cm. wide, greenish yellow; sepals ovate-lanceolate, 8 to 10 mm. long, about 4 mm. wide, slightly keeled near apex; petals 5 to 7 mm. long, 4 mm. wide, obtuse, membranous;

corona filaments in 2 series, filiform, the outer about 8 mm. long, the inner 2 to 3 mm.; operculum membranous, plicate, dentate, the teeth triangular; limen annular; ovary subglobose, glabrous.

TYPE LOCALITY: Morne Fourmi, Haiti.

DISTRIBUTION: Hispaniola.

HAITI: Morne Fourmi, 1,000 meters, *Buch 693* (B, type).

DOMINICAN REPUBLIC: Samaná Peninsula, *Abbott 2364* (B, N). Monte Ciprián, *Valeur 888* (N).

This may be only a form of *P. bilobata*, one of the principal differences between the two noted by Urban—the absence of petals in *P. bilobata*—having to be disregarded, as that species undoubtedly is petaliferous. The smaller flowers of *P. bicrura*—these borne on short, leafless branchlets—and the less deeply lobed leaves, pubescent beneath, with a broader and non-emarginate apex to the lobes, are the main differences between the two.

89. **Passiflora tenella** Killip, Journ. Wash. Acad. Sci. 20: 375. 1930.

Plant very slender, essentially glabrous throughout; stem subangular, striate; stipules setaceous, 1.5 mm. long; petioles very slender, 1 to 2.5 cm. long, glandless, sparingly pilosulous toward apex; leaves transversely oblong in general outline, 1.5 to 3 cm. long, 4 to 7 cm. wide, shallowly 3-lobed at the truncate apex (lobes obtuse or truncate; rarely the leaves distinctly 3-lobed about a third their length), retuse at base, 3-nerved, not ocellate beneath, bright green above (when dry), glaucous beneath, thin-membranous; peduncles solitary, 1-flowered, very slender, 2 to 3 cm. long, articulate just below apex; bracts setaceous, 2 mm. long, soon deciduous; flowers about 1.5 cm. wide, greenish white; sepals narrowly lanceolate, 8 to 9 mm. long, 1.5 to 2 mm. wide at base, acutish, 3-nerved, reticulate-veined, thin-transparent; petals linear, 2 to 3 mm. long, obtuse, thin-transparent; corona filaments filiform, in 2 series, the outer filaments equaling the sepals, the inner barely 2 mm. long; operculum membranous, about 1 mm. high, very slightly plicate; ovary narrowly ellipsoidal, glabrous; fruit ellipsoidal, about 3 cm. long, 0.8 cm. in diameter, tapering to a stipitate base, acuminate at apex, 6-ribbed; seeds narrowly obovate, about 2.5 mm. long, 1.5 mm. wide, transversely 4–5-sulcate, the ridges rugulose.

TYPE LOCALITY: Hacienda La Choza, Túmbez, Peru.

DISTRIBUTION: Northwestern (and perhaps eastern) Peru.

PERU: Túmbez: Hacienda La Choza, 100 to 200 meters, *Weberbauer 7704* (B, F, type, Gen, K, N).—Lima: Lima Botanical Garden, said to have come from forests of eastern Peru, *Pennell 14801* (Ph).

This interesting species probably belongs to the subgenus *Plectostemma*, although the low operculum, scarcely plicate, and the angular, capsule-like fruit suggest a relationship with *P. tryphostemmatoides* and *P. gracillima*, of *Tryphostemmatoides*. The flowers, as well as the fruits, resemble those of *P. gracilis*, a wholly different species without petals and with reticulate seeds and glandular petioles. The leaves are shaped much like those of *P. punctata*, another Peruvian species, but the far more delicate flowers, with filiform corona filaments and a glabrous ovary, clearly separate it.

90. **Passiflora erythrophylla** Mast. in Mart. Fl. Bras. 13, pt. 1: 553. 1872.

Passiflora erubescens Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 161. 1873. Not *P. erubescens* Macf. (1850).

Stem slender, angulate, slightly compressed, striate, drying yellowish, glabrous, or the younger portions finely appressed-pilosulous; petioles 4 to 8 mm. long, slender, glandless; leaves truncately 3-lobed (lateral lobes ovate-lanceolate, obtuse or subacute, minutely mucronulate, the middle lobe reduced or wanting), 1 to 2 cm. along midnerve, 2 to 3 cm. along lateral nerves, 2 to 4 cm. between apices of lateral lobes, rounded or subtruncate at base, ocellate, thin-membranous, drying purplish red, glabrous or sparsely appressed-pilosulous on the nerves beneath; peduncles solitary or in pairs, filiform, up to 1.2 cm. long; bracts setaceous, 1 to 1.5 mm. long; flowers 1.2 to 2 cm. wide, yellowish white; sepals linear, 5 to 9 mm. long, 1.5 to 2 mm. wide, obtuse; petals linear, 4 to 5 mm. long, 1 to 1.5 mm. wide, obtuse; corona filaments in 2 series, the outer filiform, 3 to 4 mm. long, the inner capillary, about 1 mm. long; operculum closely plicate, 1 to 1.5 mm. high, lobulate; ovary ovoid or subglobose, tapering to a short stipe, glabrous, or pilosulous when young; fruit ovoid or obovoid, 1.5 to 2 cm. long, 1 cm. wide, glabrous.

TYPE LOCALITY: Colombia.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: *pl. 25*.

DISTRIBUTION: Eastern Cordillera of Colombia.

COLOMBIA: *Goudot 2* (K, type, P); *Mutis 2270* (Ma, N), *2278* (Ma, N); *collector uncertain* (Bog).—Cundinamarca: San Fortunato,

near Bogotá, 2,500 meters, *Triana 2951* (BM, type of *P. erubescens* Tr. & Planch., HNC, P). Fusagasugá, *Lindig 642* (P).

I am unable to find any important differences between *P. erythrophylla* and *P. erubescens* Tr. & Planch., both names referring to the reddish hue of the leaves, a character by which this species may be readily recognized.

91. **Passiflora Ekmanii** Killip & Urban, Arkiv Bot. 21A, No. 5: 15. 1926.

Plant scandent, the tendrils slender; stem subangular, striate, short-villosulous; stipules setaceous, 2 to 3 mm. long; petioles up to 4 mm. long, densely villosulous, glandless; leaves 5 to 20 mm. along midnerve, 10 to 25 mm. along lateral nerves, 15 to 30 mm. wide, bilobed (usually with a short intermediate lobe in the sinus; lobes 5 to 10 mm. wide, rounded, mucronulate, suberect), broadly rounded at base, entire at margin, 3-nerved, subcoriaceous, above bright green and sublustrous, finely villosulous on nerves and veins, beneath dull, densely villosulous on nerves and veins; peduncles solitary or in pairs on the main stems, 8 to 10 mm. long, articulate above; bracts setaceous, 2 to 3 mm. long, dissitate in lower half of peduncle, glabrous or minutely villosulous; flowers small, about 1.5 cm. wide, whitish; calyx tube short-campanulate; sepals linear-oblong, 6 to 8 mm. long, 2 to 2.5 mm. wide, obtuse, villosulous without; petals similar to the sepals, 4 to 5 mm. long; corona filaments in 2 series, the outer narrowly linear below, subulate-attenuate at apex, 4 to 5 mm. long, the inner minute, capillary, about 0.5 mm. long; operculum membranous, plicate, erect, about 1 mm. high, lobulate and minutely fimbrillate at margin; limen disk-shaped; ovary subglobose, glabrous.

TYPE LOCALITY: Morne Tranchant, Massif de la Selle, Haiti.

DISTRIBUTION: Mountains of Haiti, about 1,700 meters altitude.

HAITI: Morne Tranchant, Massif de la Selle, *Ekman H1339* (B, N, type); *Buch 2153* (B). Morne Cabaio, *Ekman H1676* (B, N, S).

This differs from *P. bilobata* in the narrower bracts, dissitate on the peduncle, and in the shape of the leaves.

92. **Passiflora micrantha** Killip, sp. nov.

Ubique glaberrima, floribus exceptis; stipulae setaceae; petioli filiformes, eglandulosi; folia profunde bilobata, lobis late divergentibus, lobo parvulo saepe interjecto, membranacea; pedunculi bini, bracteis setaceis; flores parvi, sepalis petalisque linearibus; coronae

filamenta biseriata, exteriora filiformia, interiora setacea; operculum conferte plicatum, fimbrillatum; ovarium ovoideum; fructus globosus, seminibus paucis obovatis.

A slender, herbaceous vine, glabrous throughout except the flowers; stem subangular, striate; stipules setaceous, 2 mm. long; petioles filiform, 5 to 10 mm. long, glandless; leaves 1 to 3 cm. along midnerve, 2 to 6 cm. along lateral nerves, 4 to 7 cm. between apices of lateral lobes, deeply bilobed (lobes lanceolate, divergent at an angle of about 45 degrees, acute or subacute, a smaller intermediate lobe usually present), rounded at base, ocellate beneath, membranous, drying green; peduncles in pairs, about 1 cm. long, filiform, articulate near apex; bracts setaceous, 1.5 mm. long, scattered, soon deciduous; flowers 1.2 to 1.5 cm. wide, greenish white or greenish yellow; sepals linear, 5 to 7 mm. long, 1.5 to 2 mm. wide, obtuse, sparingly pubescent without when young; petals linear, 3 to 4 mm. long, 1 mm. wide, obtuse; corona filaments in 2 series, the outer filiform, 2 to 3 mm. long, white, those of the inner series setaceous, 1 mm. long, purplish; corona about 1 mm. high, closely plicate, densely and minutely fimbrillate with white hairs, purplish toward base; limen annular, closely surrounding base of gynophore; ovary ovoid; fruit globose, 6 to 8 mm. in diameter, few-seeded; seeds obovate, 3 mm. long, transversely sulcate, the ridges rugulose.

Type in the herbarium of the Conservatoire et Jardin Botaniques, Geneva, collected at Chinquinquirá, Boyacá, Colombia, in 1909, by Brother Apollinaire Marie. Duplicate in the United States National Herbarium and the herbarium of the Instituto de La Salle, Bogotá. Specimens from this locality, collected by Brother Toméon-Felix (*No. 53*) are in the herbarium of the Muséum d'Histoire Naturelle, Paris, and the United States National Herbarium.

Additional material examined, all from Colombia: Cundinamarca: Between Caqueza and Río Sananie, 1,600 meters alt., *Pennell 1329* (Y). Choachí, *Brother Apollinaire Marie* in 1901 (Bog).

Although the leaves resemble those of certain forms of *P. misera*, this species is closely related to *P. erythrophylla* and *P. bucaramangensis*.

93. **Passiflora affinis** Engelm. Bost. Journ. Nat. Hist. 6: 233. 1850.

Plant glabrous throughout; stipules linear-subulate, 1.5 to 2 mm. long, falcate, deciduous; petioles 1 to 3.5 cm. long, slender, glandless; leaves 2 to 10 cm. long, 3 to 14 cm. wide, usually lobed from a half

to two-thirds their length, rarely about one-third (lobes variable, oblanceolate, oblong, or ovate, rounded or obtuse, mucronulate, the middle lobe slightly longer than the lateral lobes, the latter sometimes bilobulate), cordulate or subtruncate at base, 3-nerved, minutely ocellate beneath, membranous or subcoriaceous; peduncles solitary or in pairs, 1 to 3 cm. long; bracts setaceous, 1 to 3 mm. long, dissitate in upper half of peduncle, subpersistent; flowers 2 to 2.5 cm. wide, greenish yellow; sepals oblong-lanceolate, 1 to 1.2 cm. long, 2 to 3 mm. wide, obtuse; petals linear, 6 to 8 mm. long, 1.5 to 2 mm. wide; corona filaments in 2 series, the outer filiform, 7 to 9 mm. long, knobbed at apex, the inner filiform, 1.5 to 2.5 mm. long; operculum membranous, closely plicate, incurved; limen annular; ovary globose or ovoid, glabrous; fruit subglobose, 8 to 10 mm. long, purplish black; seeds obcordate, about 3 mm. long, 2 mm. wide, transversely sulcate, the grooves 6 or 7.

TYPE LOCALITY: Comanche Spring, Texas.

DISTRIBUTION: Southern Texas and New Mexico to northern Tamaulipas, Mexico.

TEXAS: *Wright 217* (Bo, G, Gen, N), *218* (G, N); *Havard* (N). Comanche Spring, *Lindheimer 817* (type, B, BM, Bo, Brux, Cop, F, G, Gen, K, N, P, Penn, V). Fort Clark, *Mearns 1439* (N).—Fayette County: *Matthes 274* (P,V).—Kimble County: Telegraph, *E. J. Palmer 10942* (N).—Bexar County: San Antonio, *E. D. Schulz 401* (N).

NEW MEXICO: Dona Ana County: *Parry* (N).

MEXICO: Tamaulipas: El Milagro, *Bartlett 11094* (N).—Nuevo León: Monterrey, *Mueller & Mueller 100* (F).

This species, confined almost wholly to river valleys of southern Texas, is often confused with *P. lutea*. In the type specimen the leaves are lobed to much below the middle, the lobes being oblanceolate, narrowed at the base, quite unlike any leaf forms of *P. lutea*. In other specimens, however, the leaves occasionally are shaped much as in typical *P. lutea*. The most satisfactory distinguishing character between the two is the absence of bracts in *P. lutea* and their presence in *P. affinis*, persisting longer than in many of the species of this section. The presence of a distinct knob at the tips of the outer corona filaments of *P. affinis* and its apparent absence in *P. lutea* is another point of differentiation.

In *Bartlett 11094* the uppermost bract on some of the peduncles is oval, about 4 mm. long and 2 mm. wide, and is of the coloring, texture, and venation of the leaves—an unusual development.

94. **Passiflora bucaramangensis** Killip, Journ. Wash. Acad. Sci. 20: 376. 1930.

Plant essentially glabrous throughout; stem slightly trigonous, striate, minutely scabrid; stipules narrowly linear-falcate or almost setaceous, 1 to 2 mm. long, reddish purple; petioles slender, 1 to 2.5 cm. long, glandless; leaves transversely oblong, 1 to 3 cm. long, 3 to 7 cm. wide, 3-lobed about a third their length (lobes subequal or the middle lobe slightly the longest, 1 to 2 cm. wide, rounded or truncate, sometimes emarginate at apex), truncate or cordate at base, 3-nerved (nerves and veins usually prominent beneath), ocellate beneath, subcoriaceous, drying green; peduncles in pairs, about 1.5 cm. long, very slender; bracts setaceous, about 1 mm. long, scattered, persistent; flowers about 2 cm. wide; sepals linear-oblong, about 10 mm. long, 3 mm. wide, obtuse, grass-green, pale at margin; petals oblong, 5 to 6 mm. long, 3 mm. wide, obtuse, white; corona filaments in 2 series, the outer filaments narrowly linear-clavate, 4 to 5 mm. long, deep purple below, green at the slightly enlarged tip, the inner filaments filiform, 2 to 3 mm. long, grass-green; operculum closely plicate, denticulate, deep purple; limen annular, green; ovary globose; fruit globose, 8 to 9 mm. in diameter; seeds obcordate, 3 mm. long, 2.5 mm. wide, transversely 5-sulcate, the ridges rugulose.

TYPE LOCALITY: La Baja, north of Bucaramanga, Colombia.

DISTRIBUTION: Eastern Cordillera of Colombia, in the general vicinity of Bucaramanga, between 1,500 and 2,400 meters altitude.

COLOMBIA: Eastern Cordillera, *Dawe 332* (K, N).—Santander: Mesa de Los Santos, *Killip & Smith 15364* (N). La Baja, *Killip & Smith 16787* (A, G, N, type, Y). California, *Killip & Smith 17046* (G, N, Y), *18842* (BM, G, N, Y). Tona, *Killip & Smith 19508* (G, N).

This is distinguished from *P. erythrophylla* by the smaller, globose fruit, the rounded or truncate leaf lobes, the intermediate one being well developed, and the absence of the reddish hue to the foliage. The outline of the leaves of *P. bucaramangensis* and *P. obtusiloba* is very similar, but the coronal structure is different.

95. **Passiflora obtusiloba** Mast. in Mart. Fl. Bras. 13, pt. 1: 554. 1872.

Passiflora Niorbo Planch. Ann. Sci. Nat. V. Bot. 17: 156, footnote. 1873.

Stem angulate, striate, finely pilosulous or glabrescent below, densely pubescent toward ends; stipules setaceous, 3 to 4 mm. long; petioles up to 6 mm. long, glandless; leaves 1 to 2.5 cm. long, 2 to 5 cm. wide, 3-lobed about one-third their length (lobes subequal, up to 2.5 cm. wide at base, rounded), slightly cordate at base, 3-nerved, conspicuously reticulate-veined, ocellate, coriaceous, lustrous above, glabrous, sometimes very sparingly pilosulous on the nerves beneath; peduncles in pairs, up to 1 cm. long, slender, hirtellous; bracts setaceous, about 1.5 mm. long; flowers small, 1.5 to 2 cm. wide; calyx tube brownish purple without; sepals narrowly oblong, 7 to 9 mm. long, 3 to 4 mm. wide, obtuse, yellowish green, without finely pilosulous or glabrescent; petals linear-spatulate, 4 to 7 mm. long, about 2 mm. wide, obtuse, light green; corona filaments in 2 series, the outer terete, not dilated, about 4 mm. long, yellow-green, the inner 1.5 to 2 mm. long, filiform, minutely capitellate; operculum closely plicate, purple, white at margin; limen annular, purple; ovary obovoid, glabrous.

TYPE LOCALITY: Peru.

DISTRIBUTION: Mountains of central Peru, between 2,500 and 3,500 meters altitude.

PERU: *Pavón* (BM, type, Bo).—Junín: Tarma, *Weberbauer 1735* (B); *Killip & Smith 21943* (F, N, Y). Palca, *Stevens 40* (N). Huasahuasi, *Dombey 735* (B, Gen, Ma, P, type of *P. Niorbo*).—Ayacucho: Quinua, *Weberbauer 5545* (B).

Passiflora obtusiloba closely resembles *P. Lobbii* in leaf form and general habit. The leaves of *P. obtusiloba* are blunter; there are no petiolar glands; the corona is 2-ranked, not 3-ranked; and the outer filaments are green throughout, not purple in the lower half.

This species has been redescribed by Harms (Repert. Sp. Nov. 19: 25. 1923). See also discussion under *P. Lobbii*.

LOCAL NAME: "Niorbo."

96. **Passiflora Standleyi** Killip, Journ. Wash. Acad. Sci. 14: 110. 1924.

Plant essentially glabrous throughout; stem subquadrangular, striate, minutely pubescent above; stipules narrowly linear-falcate, 2 mm. long, 0.3 mm. wide; petioles 1.5 to 2.6 cm. long, glandless; leaves oblong, bilobed one-half to two-thirds their length, 2.5 to 5 cm. along midnerve, 6 to 12 cm. along lateral nerves, 4 to 5 cm. between apices of lobes (lobes lanceolate, 1.5 to 2 cm. wide, obtuse

or acutish, apiculate), rounded or subcuneate at base, 3-nerved, ocellate, reticulate-veined; peduncles slender, 2 to 3 cm. long; bracts setaceous, 2 to 3 mm. long, borne within 1 cm. of apex of peduncle; flowers 3 to 4 cm. wide, bluish purple; sepals ovate-lanceolate, 1 to 1.5 cm. long, 4 to 5 mm. wide, obtuse; petals half as long as sepals, obtuse; corona filaments capillary, in 2 series, the outer 4 to 7 mm. long, blue at base, white, spotted with blue at apex, the inner very numerous, 4 to 5 mm. long, white; operculum membranous, closely plicate, minutely fimbrillate; limen annular, 1 mm. high; ovary subglobose; fruit globose, 1 to 1.5 cm. in diameter; seeds ovate or ovate-oblong, about 3 mm. long, 2.5 mm. wide, transversely sulcate with about 7 straight, rugulose ridges.

TYPE LOCALITY: Volcán de San Salvador, Salvador.

DISTRIBUTION: Mountains of Salvador and Costa Rica, between 1,000 and 2,000 meters altitude.

SALVADOR: Volcán de San Salvador, *Standley 22821* (N, type); *Calderón* in 1922 (N). Ahuachapán, *Padilla 162* (N). Volcán de San Vicente, *Standley 21475* (N).

COSTA RICA: Between Aserrí and Tarbaca, San José, *Standley 34146* (N).

In foliage *P. Standleyi* resembles *P. ornithoura* and *P. tuberosa*. From these it differs in its bluish purple flowers and the elongate, filiform filaments of the outer corona. Both *P. ornithoura* and *P. tuberosa* have white flowers with short, strap-shaped filaments. From *P. salvadorensis*, *P. Standleyi* is distinguished by its proportionally narrower leaves and a totally dissimilar coronal structure.

LOCAL NAME: "Calzoncillo."

97. **Passiflora mexicana** Juss. Ann. Mus. Hist. Nat. 6: 108. *pl. 38, f. 2*. 1805.

Passiflora Contrayerva J. E. Sm. in Rees, Cyclop. 26: *Passiflora* No. 23. 1819.

Monactineirma mexicana Bory, Ann. Gén. Sci. Phys. Brux. 2: 138. *pl. 22, f. 6*. 1819.

Cieca mexicana M. Roemer, Fam. Nat. Syn. 2: 146. 1846.

Plant glabrous throughout; stem subquinquangular, grooved; stipules setaceous or narrowly linear, 1.5 to 2 mm. long; petioles 1 to 2 cm. long, glandless; leaves bilobed one-half or more their length (lobes oblong, occasionally linear, 0.5 to 4 cm. wide, obtuse, rarely dilated near apex and slightly emarginate, suberect and nearly

parallel or slightly divergent; length along midnerve 0.5 to 4 cm., along lateral nerves 3 to 8 cm.), 3 to 8 cm. wide, rounded or truncate at base, 3-nerved, ocellate (1 to 3 pairs) beneath, glabrous, dark green above, paler beneath; peduncles solitary or in pairs, 2 to 3 cm. long; bracts minute, setaceous, deciduous; flowers 2.5 to 4 cm. wide; calyx patelliform, about 1 cm. wide, deep reddish purple within; sepals narrowly lanceolate, 1 to 1.5 cm. long, 4 to 5 mm. wide, green to red without, white within; petals much shorter than the sepals, recurved; corona filaments in 2 series, filiform, the outer about 1.5 cm. long, nearly as long as the sepals, rich pink to deep crimson, subreflexed, the inner 2 mm. long, erect; operculum closely plicate, strongly incurved, white, pink-tinged toward margin, minutely fimbrillate; limen annular, 1.5 mm. or less high, white; ovary globose, glabrous; fruit globose, 0.6 to 1.2 cm. in diameter; seeds ovate, 3 mm. long, 2 mm. wide, transversely sulcate with 7 or 8 irregular ridges.

TYPE LOCALITY: Acapulco, Mexico.

ILLUSTRATIONS: Hernández, Rer. Medic. Nov. Hisp. Thes. 301; Ann. Mus. Hist. Nat. 6: *pl. 38, f. 2;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 22, f. 4, 6.*

DISTRIBUTION: Southern Arizona to central Mexico.

ARIZONA: *Griffiths 6997* (Mo). Titcomb Lake, *Stalmach 191* (N). Galluro Mountains, *Toumey* in 1894 (N). Rillita Valley, *Pringle 274* (G). Tucson, *Peebles & Harrison 2664* (N); *Lemmon 44* (F, G). Huachuca, *Peebles, Harrison & Kearney 3511* (N). Santa Rita Mountains, *Griffiths & Thornber 81* (N). Santa Catalina Mountains, *J. A. Harris C16517* (Minn, N); *Thornber 225* (Minn); *Lemmon* in 1881 (K, N).

MEXICO: *Née* (Ma); *Haenke 871* (Pr). Tacubaya, *Ehrenberg 1084* (B).—Sonora: Northwest mountains, *Pringle* in 1884 (Bo, Brux, F, G, N, Penn, Ph, Y), in 1885 (B, Gen, K). San José de Guaymas, *Palmer 260* (Cop, N, S). Arroyo Hondo, *Hartman 214* (G, K, N, Penn). Tubac, *Thurber 704* (F, G, Y). San Rafael, *Wiggins 5929* (N).—Sinaloa: Mazatlán, *Wright 1229* (Cal, F, G, N), *1230* (G, N); *Ortega 6376* (N, Ph); *Brandegee 1231* (Cal); *Rose 13753* (G, Gen, N), in 1897 (N). Culiacán, *Palmer 1794* (F, G, N, S, Y). Choix, *Montes & Salazar 877* (N). Cofradía, *Brandegee* in 1904 (Cal).—Jalisco: Between Bolaños and Guadalajara, *Rose 3017* (G, K, N).—Veracruz: Zordillo, *Liebmann 4112* (Cop). Monserrate, *Purpus 10211* (B, K, N, S, Y).—Puebla: Between Piaxtla and Amolac, *Nelson 2020* (G, N).—Mexico: Ypericones, *Hinton 3652* (N).—

Colima: Manzanillo, *Ferris 6154* (N).—Guerrero: Acapulco, *Humboldt & Bonpland* (B, P, type); *Thiébaut 1118* (P); *Palmer 314* (Cal, F, G, K, N); *Jolis* in 1866 (Bo).

The earliest reference to this plant is apparently that of Hernández in 1651 (Rer. Medic. Nov. Hisp. Thes. 301), who described and illustrated it under the name *coanenepilli* or *contraverva*. Linnaeus (Amoen. ed. 3, 1: 234. 1768) cited this reference under *P. normalis* L., a Jamaican species. Later Jussieu pointed out that Linnaeus' description of *P. normalis* could not possibly apply to the Mexican plant figured by Hernández, which was probably still undescribed. He accordingly described, as a new species, *P. mexicana*, basing his description upon material collected at Acapulco by Humboldt and Bonpland, and citing Hernández's plant as an additional example. He stated that, according to Bonpland's observation, *P. mexicana* was apetalous and the corona filaments were in a single series only, a condition indicated by an illustration accompanying the description. Although I did not dissect flowers of the type specimen in the Jussieu Herbarium, there can be little doubt that Jussieu was in error, and that the plant in reality bears petals and a 2-ranked corona.

The large number of specimens cited above show great uniformity, though in a few (as *Thiébaut 1118* and *Purpus 10211*) many of the leaves are lobed nearly to the base, the lobes being very slender; in this respect they closely resemble Jamaican specimens of "*P. normalis*" (*P. perfoliata* var. *normalis*).

98. **Passiflora anfracta** Mast. ex André, Journ. Linn. Soc. 20: 38. 1883.

Stem subangular, flexuous, striate, densely grayish-pilosulous; stipules setaceous, soon deciduous; petioles 3 to 6 mm. long, glandless; leaves transversely oblong in general outline, 3 to 4 cm. along midnerve, 5 to 6 cm. along lateral nerves, 7 to 9 cm. between apices of lateral lobes, truncately bilobed (lobes ovate-triangular, divergent), cordulate, ocellate, biglandular at margin at insertion on petiole, coriaceous, glabrous above, densely grayish-pilosulous beneath; peduncles solitary, about 3 mm. long, stout; bracts linear-setaceous, 2 to 3 mm. long, slightly lobed; flowers white or yellowish; sepals oblong, obtuse; petals similar to the sepals, smaller; corona filaments liguliform, subequaling the petals; operculum fleshy; limen wanting.

TYPE LOCALITY: Mt. Chimborazo, Ecuador.

DISTRIBUTION: Known only from the type specimen.

ECUADOR: Chimborazo: Río de La Mona, western slope of Mt. Chimborazo, *André 4066* (K, type).

The position of this species must remain in doubt until more material has been collected. The type specimen includes a very young bud and a single, badly preserved flower, which, presumably, was in a little better condition at the time Masters drew his diagnosis. The shape of the leaves is almost identical with that of typical *P. vespertilio* but, according to Masters, the corona is quite dissimilar. Masters mentions only a single rank of corona filaments, but a second rank may originally have been present.

99. **Passiflora Andersonii** DC. Prodr. 3: 326. 1828.

Decaloba Andersonii M. Roemer, Fam. Nat. Syn. 2: 158. 1846.

Plant glabrous throughout; stem angulate, compressed, somewhat flexuous; stipules setaceous, 2 to 3 mm. long, deciduous; petioles up to 3 cm. long, glandless; leaves 2 to 5 cm. along midnerve, 4 to 6.5 cm. along lateral nerves, 5 to 8 cm. at greatest width, truncate at upper margin or shallowly 2 (rarely 3)-lobed (lobes rounded, mucronulate), rounded or subtruncate at base, 3-nerved, ocellate, membranous, glaucous beneath; peduncles solitary or in pairs, up to 3 cm. long, articulate just below apex; bracts setaceous, 2 to 3 mm. long, dissitate; flowers 3 to 3.5 cm. wide; sepals ovate-lanceolate, about 1.5 cm. long and 5 mm. wide, obtuse; petals linear-oblong, about half as long as the sepals, 2 mm. wide, white; corona filaments in 2 series, the outer narrowly ligulate, about 5 mm. long, dilated just above middle, those of the inner series filiform, about 3 mm. long, flat, slightly dilated at apex; operculum closely plicate, denticulate; limen narrowly annular; ovary globose, glabrous; fruit globose, 1 to 1.5 cm. in diameter; seeds ovate-obcordate, about 4 mm. long, 2 mm. wide, transversely 9–11-sulcate.

TYPE LOCALITY: St. Lucia.

DISTRIBUTION: Lesser Antilles.

GUADELOUPE: *Duss 2227* (F, N, Ph, Y), *3871* (Y); *L'Herminier* (Bo).

MARTINIQUE: *Hahn 177*, in part (B, BM, Gen), *865* (BM, Gen, P); *Isert* in 1787 (Cop); *Duss 871*, in part (B, F, N); *Mouret 211* (P); *Bélanger 634* (P).

ST. LUCIA: *Anderson* (BM, K, type).

ST. VINCENT: *H. H. Smith 1876* (Y); *G. W. Smith 736* (K).

Most of this material has been referred to *P. rotundifolia*, and the specific name *P. Andersonii* has generally been overlooked.

Passiflora Andersonii is glabrous throughout, and the leaves are broader than long; *P. rotundifolia* is densely pubescent, and the leaves are nearly orbicular. The Duss specimens are confusing, as he distributed specimens of both species with a single label bearing two or more collection numbers.

100. **Passiflora micropetala** Mast. in Mart. Fl. Bras. 13, pt. 1: 585. 1872.

Stem compressed, flexuous, glabrous; petioles 4 to 6 mm. long, glandless; leaves semi-orbicular, about 6.5 cm. long and 9 cm. wide, truncate at apex, obsoletely 3-lobed, mucronate, cordate at base, ocellate with 2 glands near base, membranous, green above, wine-red beneath, glabrous(?); peduncles solitary or in pairs; bracts unknown; flowers white; sepals triangular, broad, erect; petals ovate, small, white; corona filaments in 2 series, the outer clavate, obtuse, white, green at base, the inner ones few, filiform; operculum plicate, fimbriate at the apex; ovary globose; fruit globose, about 1.5 cm. in diameter.

TYPE LOCALITY: Rio Japurá, State of Amazonas, Brazil (type collected by Martius).

This is one of the few species maintained as valid by Masters in the *Flora Brasiliensis* that I know only from description. The semi-orbicular, obscurely 3-lobed leaves suggest several species in *Plectostemma*, but all these differ in one or more details from other characters given by Masters. The position it should occupy in the present treatment is doubtful.

101. **Passiflora rotundifolia** L. Sp. Pl. 957. 1753.

Decaloba rotundifolia M. Roemer, Fam. Nat. Syn. 2: 159. 1846.

Plant densely ferruginous-tomentose nearly throughout, or the older portions becoming merely pilosulous; stem angulate; stipules setaceous, 2 to 3 mm. long, deciduous; petioles 1 to 3 cm. long, glandless; leaves suborbicular, 3 to 7 cm. long and wide, obscurely 3-lobed at apex (lobes rounded, mucronulate, the middle one subequaling or shorter than the lateral), rounded or subtruncate at base, 3-nerved, ocellate, membranous or subcoriaceous, minutely pilosulous and dull above, densely pilosulous beneath, especially on nerves, or ferruginous-tomentose; peduncles usually in pairs, 1 to 2.5 cm. long, articulate near apex; bracts setaceous, 2 to 3 mm. long, at length deciduous; flowers 2.5 to 3 cm. wide, white; sepals linear-lanceolate, 4 to 5 mm. wide at base, obtuse, dorsally green at center,

white at margin, white within; petals linear, about one-third as long as sepals, barely 2 mm. wide, obtuse, white; corona filaments in 2 series, the outer narrowly linear or almost filiform, 3 to 4 mm. long, subequal to the petals, flat, white, the inner filiform, 2 to 2.5 mm. long, not dilated at apex, very numerous, green; operculum closely plicate, denticulate at margin; nectar ring a fleshy ridge close to limen; limen annular, similar to but narrower than nectar ring; ovary globose, densely brown-pilose; fruit globose, about 1 cm. in diameter.

TYPE LOCALITY: "America australiori," but probably one of the Lesser Antilles.

ILLUSTRATIONS: Plum. Pl. Amer. ed. Burm. *pl. 138, f. 1;* Cav. Diss. 10: *pl. 290.*

DISTRIBUTION: Lesser Antilles.

GUADELOUPE: *Duchassaing* (Cop, Gen); *Duss 605* (P), *2228* (B, Y), *3605* (B, Y); *Stehlé 123* (Y).

MARTINIQUE: *Siebert* (V); *Duss 871,* in part (Y); *Hahn 177,* in part (BM, Bo, K, P, Gen, V).

ST. VINCENT: *H. H. Smith 732* (B, G, J); *Guilding* (K); *Bertero* (V).

GRENADA: *Miller 317* (N).

A number of variable specimens from widely separated localities have been referred to *P. rotundifolia.* Linnaeus' description in the *Species Plantarum* says merely:

"Passiflora foliis subtrilobis obtusis subrotundis.

"Granadilla folio hederaceo, flore albo, fructo globoso villoso. *Plum. spec.* 6. *Barr. obs. praef.* 1. *titul.* f. 2.

"*Habitat in* America *australiori.*"

The Plumier plate cited by Linnaeus shows a plant with nearly orbicular leaves and a pilose ovary. The Brazilian specimens and those from northern South America often referred to this species differ not only in leaf shape and in indument but also in various other details, and are referable mainly to *P. Pohlii* and *P. cuneata,* respectively. The glabrous plant from the West Indies, described by Swartz as "*P. rotundifolia,*" and considered by De Candolle a variety of *P. rotundifolia* L., is *P. penduliflora.* The Jamaican specimen in the Linnean Herbarium labeled "*P. rotundifolia*" by Solander is *P. penduliflora;* it was not in Linnaeus' possession in 1753. *Passiflora rotundifolia* apparently is confined to the Lesser

Antilles, and is characterized by nearly orbicular leaves, a dense indument, and a brown-pilose ovary. Urban has called attention (Symb. Ant. 3: 325) to the inaccurate description of the flower parts given by Masters in *Flora Brasiliensis.*

102. **Passiflora Pohlii** Mast. in Mart. Fl. Bras. 13, pt. 1: 586. 1872.

(?)*Passiflora obtusa* Vell. Fl. Flumin. 9: *pl. 81.* 1827, plate only.

(?)*Decaloba obtusa* M. Roemer, Fam. Nat. Syn. 2: 155. 1846.

Passiflora rotundifolia L. sensu Mast. in Mart. Fl. Bras. 13, pt. 1: 587. 1872, in greater part. Not *P. rotundifolia* L.

Passiflora tristis Mart. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 587. 1872, as synonym.

Stem subtriangular, finely pilosulous or villosulous; stipules linear-subulate, 2 to 3 mm. long, subfalcate; petioles 1 to 2.5 cm. long, glandless, finely pilosulous or villosulous; leaves 3 to 7 cm. along midnerve, 4 to 8 cm. along lateral nerves, 3.5 to 9 cm. between apices of lobes, variable in outline, suborbicular to ovate-oblong, truncate at apex, undulately 3-lobed, or distinctly 3-lobed (lobes, if present, rounded or subacute, mucronulate), rounded or subacute at base, 3-nerved, reticulate-veined (veins pale and usually minutely scabrellous above), ocellate with a pair of conspicuous, black glands at base, sparingly ocellate elsewhere, membranous, glabrous above, densely pilosulous or villosulous beneath; peduncles solitary or in pairs, 1 to 2 cm. long; bracts setaceous, 2 to 4 mm. long; flowers 2 to 2.5 cm. wide; sepals linear-lanceolate, 10 to 15 mm. long, 4 to 5 mm. wide, obtuse, densely pilosulous without; petals linear, about 7 mm. long and 3 mm. wide, white; corona filaments in 2 series, the outer filiform or very narrowly ligulate, subequal to the petals, the inner filiform, 2 to 3 mm. long; operculum plicate, denticulate; limen fleshy, lobulate, nearly 1 mm. high; ovary subglobose, glabrous; fruit globose, up to 1.2 cm. in diameter; seeds ovate, about 4 mm. long and 2 mm. wide, transversely 6-sulcate.

TYPE LOCALITY: Cavalcante, Goyaz, Brazil (type, *Pohl 2186*).

ILLUSTRATION: (?)Vell. Fl. Flumin. 9: *pl. 81.*

DISTRIBUTION: Eastern Bolivia to central and southern Brazil.

BRITISH GUIANA: Cultivated at Botanic Gardens, *Jenman 4221* (BG).

BOLIVIA: Santa Cruz: Velasco, 200 meters, *Kuntze* in 1892 (N, Y).

BRAZIL: *Hoffmannsegg* (BW); *Sello 2128* (B). Alto Macaché, *Glaziou 18254* (B, Cop, K). Copa Caboma, *Nadeaud* in 1862 (P).—Matto Grosso: Cuyabá, *Martius 1220* (B, BM, Brux, Gen, K, S, Y); *Malme* in 1902 (S), in 1903 (S); *Weddell 2896* (P).—Minas Geraes: *Claussen 376* (P, S); *St. Hilaire 1955* (P). Lagoa Santa, *Warming 1160* (Cop, N); *Barreto 878* (N); *Glaziou* (P); *Archer 3608* (NA). Tejuco, *Burchell 5904* (K, P). Botanical Garden, Bello Horizonte, *Barreto 877* (N), *880* (N).—São Paulo: Araroguara, *Löfgren 1015* (Cop). Tatuly, *Hoehne 1387* (B).

I am in doubt as to whether all the specimens here listed represent a single species and whether any of them are correctly referable to *P. Pohlii*. This species is described very briefly by Masters, the type specimen not being in flower, and is represented in the Kew Herbarium only by a drawing of a single leaf and an ovary. The dimensions of this leaf are 6.5 cm. long, 9.5 cm. wide, a proportion which holds true for *Warming 1160–3* and *Löfgren 1015*. In this form the upper margin is almost a straight line. *Martius 1220* has nearly orbicular leaves, subcuneate at the base, and the upper margin is undulately 3-lobed. In *Warming 1160–2* the leaves are proportionately longer, distinctly and subacutely 3-lobed, and subcuneate at the base. The pubescence, leaf venation, and flower structure, the latter being imperfectly shown in the Martius and Löfgren specimens, seem essentially the same in all of this material. The variation in foliage is not sufficient to justify the recognition of separate species.

This species is easily confused with *P. tricuspis*, but the inner corona filaments are far slenderer than in *P. tricuspis*, the indument is denser, and the stem is not at all roughened. Both have much the same variation in the form of the leaves.

Many of these sheets were cited as *P. rotundifolia* L. by Masters, and bear the names "*P. rotundifolia* L." and "*P. tristis* Mart." in Masters' handwriting. In indument, leaf venation, glabrous ovary, size of flowers, and coronal structure the specimens differ greatly from typical *P. rotundifolia* L., confined to the Lesser Antilles.

Passiflora obtusa Vell. is perhaps this species. From the drawing it appears to be a glabrous plant, and may be a form of *P. organensis*, to which it was doubtfully referred by Masters.

Section 4. **Xerogona**

103. **Passiflora cobanensis** Killip, Journ. Wash. Acad. Sci. 14: 111. 1924.

Stem slender, 4–5-angulate, finely pubescent with curved, grayish hairs; tendrils weak, densely pubescent; stipules lanceolate, sub-

falcate, 8 to 9 mm. long, 1.5 to 2 mm. wide, acuminate, conspicuously 5–7-nerved; petioles 8 to 10 mm. long, glandless, pubescent; leaves ovate-lanceolate, 7 to 10 cm. long, 2.5 to 3.5 cm. wide, unlobed, attenuate-acuminate, rounded at base, 3-nerved, faintly reticulate-veined, without ocellae, membranous, glabrous and sublustrous above, finely pubescent beneath with curved, grayish brown hairs; peduncles 1.5 cm. long; bracts none; flowers about 2.2 cm. wide, greenish; sepals linear-lanceolate, 10 mm. long, 2 mm. wide, acute, pubescent without; petals lanceolate, 5 mm. long, 2 to 3 mm. wide, obtuse; corona filaments in a single series, linear-clavate, 2.5 mm. long; operculum membranous, plicate; limen annular; ovary obovoid, subangulate, densely tomentellous.

TYPE LOCALITY: Between Chamá and Cobán, Alta Verapaz, Guatemala.

DISTRIBUTION: Known only from the type locality, in northern Guatemala.

GUATEMALA: Alta Verapaz: Between Chamá and Cobán, 950 meters, *H. Johnson 411* (N, type).

Although this specimen is not in fruit, the absence of glands either on the petioles or in the form of ocellae on the leaf blades and the absence of bracts indicate the relationship of *P. cobanensis* with *P. capsularis*. There is a specimen in the National Herbarium, collected near San José, Costa Rica, by H. Pittier (*Inst. Phys. Geog. Costa Rica 16675*), which closely resembles *P. cobanensis*, but its leaves are unequally 2-lobed to below the middle. The lobes of this specimen are lanceolate, acuminate, 1.5 to 2 cm. wide, the distance between the tips of the lobes being about 7 cm.

In the present arrangement this is the first species of a well marked section of *Plectostemma*, for which I have used Rafinesque's name *Xerogona*, typified by *P. capsularis*. The correlation of glandless petioles and transversely sulcate seeds characterizes this section as it does *Decaloba*, but the ridges of the seeds are smooth, the peduncles are always bractless, and the fruit is decidedly elongate.

104. **Passiflora brevipes** Killip, Carnegie Inst. Wash. Publ. 461: 312. *pl. 2.* 1936.

Plant closely short-velutinous throughout; stem triangular; stipules linear-lanceolate, 5 to 7 mm. long, 1 to 1.5 mm. wide, coriaceous, persistent; petioles 8 to 10 mm. long, glandless; leaf blades ovate-lanceolate, 5 to 8 cm. long, 2.5 to 4 cm. wide, acute or acuminate, cordulate, entire, thickened at margin, 3-nerved, conspicuously

reticulate (nerves and veins elevated beneath), coriaceous, light green in color when dry; the flowers 1 to 1.5 cm. wide, greenish white, in pairs on the main stem or on short, axillary, and nearly leafless branches 4 to 5 cm. long, the pedicels 4 to 5 mm. long, bractless; sepals linear, 8 to 9 mm. long, 2 to 2.5 mm. wide; petals narrowly linear, 3 to 4 mm. long, about 1 mm. wide; corona filaments in a single series, subulate, 2.5 to 3 mm. long; operculum 1 mm. high, plicate, slightly incurved; ovary narrowly ovoid; fruit ovoid, about 4 cm. long, 1.8 cm. in diameter, attenuate at base, short-stipitate, hexagonal; seeds ovate, 4 to 5 mm. long, 2 mm. wide, transversely sulcate with 6–7 smooth ridges, black, and lustrous.

TYPE LOCALITY: Jacinto Hills, British Honduras.

ILLUSTRATION: Carnegie Inst. Wash. Publ. 461: *pl. 2.*

DISTRIBUTION: Known only from the type locality.

BRITISH HONDURAS: Jacinto Hills, 120 meters, *Schipp 1304* (F, type, G, Gen, Mich).

The only other species with unlobed leaves in this small group is *P. cobanensis*, which differs in indument, shape and texture of the leaves, and shape of the corona filaments.

105. **Passiflora costaricensis** Killip, Journ. Wash. Acad. Sci. 12: 257. 1922.

Stem 3-angled, flattened, hirsute, at least along the angles, with long, spreading, light brown hairs, glabrescent below; stipules subulate, 6 to 8 mm. long; petioles 1.5 to 2 cm. long, densely hirsute, glandless; leaves oblong, ovate, or suborbicular-ovate in general outline, 9 to 13 cm. long, 7 to 11 cm. wide, 2-lobed (lobes deltoid, acute or acuminate, mucronate, extending about one-third the length of blade, ascending, the terminal sinus lunate or nearly semicircular), at base rounded, 3-nerved, membranous, hirsute, especially beneath; peduncles solitary, 1.5 cm. long, articulate at middle, sparingly pilose; bracts none; flowers 4.5 to 5 cm. wide; sepals linear-lanceolate, 2 cm. long, 0.4 cm. wide, obtuse, hirsute without, glabrous within, the central portion dark green, the margin hyaline, white; petals linear-oblong, 8 mm. long, 2 mm. wide, obtuse, hyaline; corona filaments in a single series, narrowly ligulate, as long as the petals; operculum membranous, closely plicate, the margin incurved; limen annular; ovary minutely puberulent; fruit ellipsoidal, 7 to 8 cm. long, 1 to 1.5 cm. in diameter at middle, long-tapering at both ends, at length glabrous; seeds slightly flattened, narrowly oblong, 3 mm. long, 1.5

mm. wide, black, shining, transversely sulcate with 6 or 7 ridges, the ridges smooth, parallel, the axis curved, the beak 0.9 mm. long, recurved.

TYPE LOCALITY: Shirores, Talamanca, Costa Rica.

DISTRIBUTION: Guatemala to Costa Rica, near sea level.

GUATEMALA: Alta Verapaz: Cubilquitz, *Türckheim 7877* (G, N).

HONDURAS: Tela, Atlántida, *Standley 52806* (N).

COSTA RICA: *Tonduz 9594* (Brux). Shirores, Talamanca, *Tonduz 9327* (Brux, N, type). Las Vueltas, Tucurrique, *Tonduz 13146* (B, Bo, N, V). La Colombiana Farm, Limón, *Standley 36989* (N). Livingston, *Rowlee & Stork 723* (N, Y). Florida, *Rowlee & Stork 619* (N).

The fruit of this species and the seed sculpturing indicate a close relationship with *Passiflora capsularis*, the principal differences lying in the shape of the leaves and character of the indument. In *P. costaricensis* the leaves are longer than broad and are round at the base; they have a nearly semicircular sinus, formed by relatively approximate lobes. In *P. capsularis* the leaves are broader than long, and are cordate at the base; they have an irregularly shaped sinus, formed by widely divergent lobes, and a more or less prominent intermediate lobe. The pubescence of the former is usually much denser and of much longer hairs than that of the latter.

106. **Passiflora goniosperma** Killip, Journ. Wash. Acad. Sci. 17: 424. 1927.

Plant densely hirsutulous throughout, the hairs of the stem often recurved or retrorse; stem subtriangular, tortuous; stipules linear-lanceolate, 4 to 6 mm. long, up to 1 mm. wide, aristate, subfalcate; petioles 5 mm. long or less, glandless; leaves oblong in general outline, 2-lobed one-quarter to one-third their length, 1.5 to 4.5 cm. along midnerve, 2 to 6 cm. along lateral nerves, 2 to 4 cm. between tips of lobes (lobes obtuse, mucronulate, the sinus truncate or slightly rounded, occasionally emarginate, often mucronulate at end of midnerve), scabrellous and densely hirsute above with subappressed, white hairs, swollen at base, usually pilose-hirsute and paler beneath; flowers in pairs on short (2 cm.), axillary, leafy branches, rarely on the main stem; bracts none; flowers 1.5 cm. wide or less; sepals lanceolate, about 7 mm. long, 2 mm. wide, acute, hirsutulous without; petals narrowly linear, 3 to 4 mm. long, 1 mm. wide; corona filaments in a single series, liguliform, 2 mm. long; operculum membranous,

closely plicate, white; limen annular; ovary ovoid, longitudinally 6-grooved, white-puberulent; fruit asymmetrically ellipsoidal, up to 4 cm. long and about 1 cm. wide, sharply 6-angled, long-tapering at ends; seeds obovate, 3 to 4 mm. long, 1.5 to 2 mm. wide, blackish, lustrous, narrowed at both ends, the axis more or less curved, the lateral margins thin-winged, the central portion of each face elevated, forming a sharp-toothed ridge (hence the seed quadrangular in cross section).

TYPE LOCALITY: Niña de Dolores, Oaxaca, Mexico.

DISTRIBUTION: Southern Mexico.

MEXICO: Oaxaca: Sierra San Pedro Nolasco, *Jürgensen 866* (BM, K). Niña de Dolores, *Liebmann 4076* (*Passiflora* No. 29; Cop, type). Santa Gertrudis, *Liebmann 4075* (*Passiflora* No. 30; Cop). Sierra de Ixtlán, *Conzatti* in 1913 (G, Mo, N). Tepanzacuales, *Conzatti* (G).

The seeds of *P. goniosperma* differ markedly from those of other American species of *Passiflora*. Each of the two faces has the appearance of being compressed laterally to form a narrow, longitudinal ridge; the transverse ridges, normally extending from margin to margin in the species of the subgenus *Plectostemma* with sulcate seeds, are reduced to a row of teeth along this longitudinal ridge. The ellipsoidal, 6-angled fruit, the absence of bracts, and the general aspect of the plant, however, show a rather close relationship with *P. capsularis*, the species to which the type specimen of *P. goniosperma* was referred by Masters. In addition to the seed characters, other marks which distinguish it from *P. capsularis* are the smaller leaves, with rounded, subparallel lobes (lobes usually acute, divergent in *P. capsularis*).

107. **Passiflora Conzattiana** Killip, Journ. Wash. Acad. Sci. 17: 425. 1927.

Stem slender, terete, pilosulous, becoming glabrate, reddish; stipules setaceous, about 4 mm. long; petioles 0.8 to 2 cm. long, densely pilosulous, glandless; leaves 2 to 5 cm. long, 3 to 8 cm. wide, 2-lobed (lobes acute, rarely subobtuse, widely divergent, the sinus shallowly semilunate or the upper margin nearly truncate, an intermediate lobe occasionally present), cordate, 3-nerved (nerves often terminating in a short cusp), thin-membranous, sparingly setose above, densely grayish-pubescent beneath, especially on the nerves and veins; peduncles solitary or in pairs, slender, up to 2 cm. long; bracts none; flowers small, 1 to 1.8 cm. wide, greenish white,

densely spotted with red; sepals linear-lanceolate, 8 to 10 mm. long, 2 mm. wide; petals linear-lanceolate, 4 to 5 mm. long, 1.5 mm. wide; corona filaments in a single series, relatively few, liguliform, 3 to 4 mm. long, 0.4 mm. wide, deep purple in the lower two-thirds, yellow in the upper third; operculum membranous, erect, closely plicate, red below, pale yellow or white above, minutely fimbrillate; limen incurved, denticulate; ovary narrowly ovoid, densely puberulent or tomentulose; fruit narrowly ellipsoidal, about 5 cm. long (including the long, slender stipe and the caudate tip), 1 cm. in diameter, 6-angled, finely pubescent, at length glabrous; seeds broadly obcordate or suborbicular, 1.5 to 2 mm. long and wide, transversely 5–6-grooved, the ridges smooth.

TYPE LOCALITY: Mirador, Veracruz, Mexico.

DISTRIBUTION: East-central Mexico.

MEXICO: *Haenke 879* (Pr).—San Luis Potosí: Las Canoas, *Pringle 3638* (G).—Hidalgo: Chapulhuacán, *Lundell & Lundell 7156* (N).—Veracruz: Mirador, *Purpus 8804* (F, G, N, type, Y); *Galeotti 3658* (Brux); *Ghiesbreght 62* (P); *Linden 752*, in part (K). Jalapa, 1,200 meters, *Rose & Hough 4260* (N), *4938* (N); *Pringle 7840* (N); *Schiede* (B, cited by Schlechtendal and Chamisso as "*Passiflora rubra?* L." in Linnaea 5: 88. 1830). Tortula, *Liebmann 4154* (*Passiflora* No. 28; Cop).

The principal points of difference between this species and *P. capsularis* and *P. rubra* are much smaller flowers, smaller leaves nearly truncate at the upper margin, and nearly orbicular rather than oblong seeds. Several of the specimens here cited were distributed as *P. rubra*, a species frequent in the West Indies and South America but apparently not found in Mexico.

108. **Passiflora Rovirosae** Killip, Journ. Wash. Acad. Sci. 12: 259. 1922.

Stem 5-angled, striate, glabrate below, pilosulous above; stipules falcate-subulate, 8 to 10 mm. long, soon deciduous; petioles 1.5 to 2 cm. long, densely pubescent, glandless; leaves subtruncate-ovate in general outline, 8 to 15 cm. long, 6 to 9 cm. wide, bilobate (lobes one-eighth to one-quarter the length of blade, suberect, acute, mucronulate), deeply cordate, slightly narrowed toward apex, membranous, above dark green, glabrate, or puberulent on the nerves, pale and grayish-villosulous beneath; peduncles 1 to 1.5 cm. long, 1-flowered, in pairs on short, axillary, sometimes leafy, puberulent branches 1 to 2 cm. long, the inflorescence thus appearing racemose;

bracts none; flowers 3 to 4 cm. wide, yellowish green; sepals oblong, 1.3 to 1.5 cm. long, 0.4 cm. wide, obtuse; petals oblong, obtuse, 8 to 10 mm. long, 3 mm. wide; corona filaments in 2 series, the outer filiform, about 1 cm. long, the inner capillary, barely 4 mm. long; operculum membranous, erect, 4 to 5 mm. high, closely plicate; limen annular; ovary narrowly ovoid, sharply 6-angled, canescent-puberulent; fruit fusiform or ellipsoidal, 3 to 4 cm. long, 1.5 to 2 cm. in diameter, sharply 6-angled; seeds obovate, about 4 mm. long and 3 mm. wide, black, lustrous, transversely sulcate, with 5 or 6 smooth ridges.

TYPE LOCALITY: Atasta, Tabasco, Mexico.

DISTRIBUTION: Southeastern Mexico, northeastern Guatemala, and British Honduras, at low elevations.

MEXICO: *Sessé & Mociño 4452* (Bo, Ma), *4453* (Bo, Ma).—Veracruz: Misantla, *Purpus 5881* (BM, Cal, G, Mo, N). Chinantla, *Galeotti 3671* (Brux, Gen, P).—Tabasco: Atasta, *Rovirosa 813* (Ph, type).

GUATEMALA: Petén: Uaxactún, *Bartlett 12691* (N).

BRITISH HONDURAS: Paraíso, *Gentle 810* (N). Corozal, *Gentle 434* (N), *608* (N).

This species is readily distinguished from *P. capsularis* by the leaves being longer than broad and by the flowers being borne on short, axillary branches rather than on the main stem.

109. **Passiflora capsularis** L. Sp. Pl. 957. 1753.

Granadilla capsularis Medic. Malvenfam. 96. 1787.

Passiflora pubescens HBK. Nov. Gen. & Sp. 2: 132. 1817.

Passiflora capsularis var. *acutiloba* DC. Prodr. 3: 325. 1828.

Xerogona biloba Raf. Fl. Tellur. 4: 103. 1838.

Passiflora piligera Gardn. Lond. Journ. Bot. 1: 173. 1842.

Cieca pubescens M. Roemer, Fam. Nat. Syn. 2: 141. 1846.

Decaloba capsularis M. Roemer, Fam. Nat. Syn. 2: 154. 1846.

Decaloba Smithii M. Roemer, Fam. Nat. Syn. 2: 161. 1846.

Decaloba piligera M. Roemer, Fam. Nat. Syn. 2: 161. 1846.

Passiflora paraguayensis Chod. Bull. Herb. Boiss. 7, App. 1: 74. 1899.

Passiflora Hassleriana Chod. Bull. Herb. Boiss. 7, App. 1: 74. 1899.

Passiflora Hassleriana var. *grandifolia* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 62. 1904.

Passiflora Hassleriana var. *paraguariensis* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 62. 1904.

Passiflora quinquangularis Calderón, Passifloras Dilobatas del Salvador 6.

Stem 3–5-angled, striate, glabrate or pubescent; stipules linear-subulate, slightly falcate, 5 to 7 mm. long; petioles 1 to 3 cm. long, glandless; leaves 2 to 7 cm. along midnerve, 4 to 10 cm. along lateral nerves, bilobed (lobes occasionally asymmetrical, lanceolate, acute, rarely subobtuse, apiculate, the sinus acute or occasionally truncate at base), cordate, 3-nerved, glabrate or pilosulous above, paler and densely pubescent beneath; peduncles solitary, 1 to 6 cm. long, often very slender, articulate about 1 cm. from apex; bracts none; flowers 2 to 6 cm. wide, greenish white or pale yellow-green; sepals linear-lanceolate, 1 to 3 cm. long, 2.5 to 4 mm. wide, acute, pilose without; petals narrowly oblong-lanceolate or subspatulate, 6 to 15 mm. long, 2 to 4 mm. wide, obtuse; corona filaments in 1 or 2 series, the outer filiform, 1.2 to 1.5 cm. long, united at base into a thin, transparent membrane, violet, carinate at base, the inner series (sometimes wanting) capillary, barely 3 mm. long, violet; operculum membranous, plicate, 1 to 1.2 mm. high; limen annular; ovary narrowly ovoid or slightly obovoid, minutely puberulent or rarely glabrate, hexagonal; fruit ellipsoidal or fusiform, sharply hexagonal, 5 to 6 cm. long, 1.5 to 2 cm. in diameter; seeds ovate, 3.5 mm. long, transversely sulcate, with 5 or 6 smooth ridges.

TYPE LOCALITY: "Gallia aequinoctiali."

ILLUSTRATIONS: Plum. Pl. Amer. ed. Burm. *pl. 138, f. 2.* 1757; Ann. Gén. Sci. Phys. Brux. 2: *pl. 22, f. 10;* Bot. Mag. 55: *pl. 2868;* Calderón, Passifloras Dilobatas del Salvador *f. 1–8;* Mutis, Icon. Pl. Ined. 26: *pl. 22.*

DISTRIBUTION: Greater Antilles; Guatemala to Costa Rica; Colombia; central Brazil to Paraguay; up to 1,900 meters altitude.

GUATEMALA: Santa Rosa: Guachipilín, *Heyde & Lux* (*J. D. Smith 6141*, B, Bo, G, Gen, N). Cuajiniquilapa, *Heyde & Lux* (*J. D. Smith 6142*, B, G, N).

HONDURAS: *Hjalmarson* in 1852 (S).

BRITISH HONDURAS: Corozal, *Gentle 224* (Mich).

SALVADOR: San Salvador, *Calderón 851* (type collection of *P. quinquangularis*, G, N). Ahuachapán, *Standley 19733* (G, N); *Calderón 2438* (F).

COSTA RICA: *Pittier 8921* (Brux). La Palma, *Tonduz 7426* (N). Las Nubes, *Standley 38366* (N). San Francisco, *Pittier 8032* (Brux).

CUBA: Santa Clara: Soledad, *Jack 6316* (N).—Oriente: Bayate, *Ekman 10073* (S).

HAITI: Pétionville, *Leonard 4882* (B, N). Port au Prince, *Leonard 2839* (N). St. Michel de l'Atalaye, *Leonard 7010a* (N). Ennery, *Leonard 9465* (N). Terre Neuve Mountains, *Ekman H5055* (N).

COLOMBIA: Magdalena: Cincinnati, *Seifriz 15* (N).—Santander: Suratá, *Killip & Smith 16477* (A, G, N, Y), *19044* (G, N, Y). Charta, *Killip & Smith 19037* (G, N, Y). Bucaramanga, *Killip & Smith 19340* (N). San Juan Valley, *Haught 1768* (N).—Boyacá: Muzo, *Goudot 4* (K, P).—Cundinamarca: La Mesa, *Lehmann 4828* (K). La Esperanza, *Archer 3284* (N).—Tolima: Ibagué, *Goudot* (P). Líbano, *Pennell 3424* (G, Mo, N, Y).—Antioquia: Santa Bárbara, *Pennell 10895* (N). Salamina, *Lehmann 4723* (B, K, N). Hatillo, *Daniel 941* (N).—Caldas: Belén, *Pennell 10613* (N). Piedra de Moler, *André 2418* (K).—El Valle: Cisneros, *Killip 5371* (N). La Manuelita, near Palmira, *Pennell & Killip 6167* (G, N, Y).

BRAZIL: *Burchell 2552* (K), *9096* (K); *Boaz* (K).—Goyaz: Goiabeira, *Chase 11517* (N).—Matto Grosso: Aquidanana, *Chase 11060* (N).—Minas Geraes: *Regnell III.639* (B, N, P, S). Lagoa Santa, *Warming 1159* (Cop), *1161* (Cop). Caldas, *Mosén 4150* (S); *Glaziou* (P). Serra do Caparão, *Chase 9631* (N). Juiz de Fora, *Chase 8618* (N). Lavras, *Chase 8801* (N). Barroso, *Mexia 5402* (Gen, N).—Rio de Janeiro: *Gardner 49* (BM, K); *St. Hilaire 18bis* (P), *716* (P); *Widgren* in 1844 (S); *Riedel & Luschnath 718* (N); *Miers 3980* (BM, K). Gavia Mountain, *Gardner* (BM, type of *P. piligera*). Cantagallo, *Peckholt 184* (V); *Martius* (Brux). Novo Friburgo, *Glaziou 10871* (B, K, P). Tijuca, *Glaziou 3990* (Cop, P). Rio de Janeiro, *Wilkes Expedition* (N); *Pohl 3521* (V).—São Paulo: *Perdonnet 264* (Bo); *Brade 5525* (S); *St. Hilaire 704bis* (P). Serra de Caracol, *Mosén 1329* (S).—Paraná: Jaguariahyva, *Dusén 11631* (Gen, S). San Juan, *Dusén 13574* (S). Ypiranga, *Dusén 9891* (S).—Santa Catharina: *F. Müller 429* (K). Herval, *Dusén 11893* (N, S).—Rio Grande do Sul: *Sello 598* (B). Santo Angelo, *Lindman 1141* (N, S); *Malme 542B* (S).

URUGUAY: *Herter 2606* (B).

PARAGUAY: Tacural, *Hassler 1202* (Bo, type of *P. Hassleriana*, K, P). Sierra de Amambay, *Hassler 10388* (B, BM). Río Apa, *Hassler 7913* (A, B, BM, Bo, type of *P. Hassleriana* var. *grandiflora*,

Gen, K, P, V); *Fiebrig 4108* (B, Gen, K). Cordillera de Altos, *Fiebrig 194* (B, Gen), *426a* (B, F, Gen); *Hassler 3166* (Bo, type of *P. paraguayensis*, Gen), *11531* (B, BM, Cop, Gen, N). Río Alta Paraná, *Fiebrig 6027* (B, BM, G, Gen, N, P). Villa Rica, *Jörgensen 3792* (N). Río de La Plata, *Palmer* in 1854 (N). Asunción, *Balansa 2201* (Gen). San Lorenzo, *Archer 4761* (NA).

Passiflora capsularis has its origin in Plumier's brief description (Cat. Pl. Amer. 6. 1703), "Granadilla fructu rubente, folio bicorni," and this is the first reference cited by Linnaeus under *P. capsularis* in the 1753 edition of the *Species Plantarum*. The species was often confused by early authors with its close relative, *P. rubra*. The points of difference between the two are discussed under *P. rubra* in the present paper, and there seems little need now to deal with these early misconceptions other than to point out the status of *Decaloba Smithii* and *Passiflora capsularis* var. *geminiflora*.

J. E. Smith in Rees' *Cyclopedia* (species No. 22) cited Plumier's *Plantae Americanae* (ed. Burmann) page 129, *pl. 138*, and Plumier's *Plantes de l'Amérique* page 68 (*pl. 83*), calling attention to the absence of bracts in this species. He then discussed a Jamaican plant at hand, which he said agreed perfectly with Plumier's first plate except that the leaves were scarcely cordate and the flowers were borne in pairs; the rest of Smith's description applied well to the first of Plumier's plates. To the element with paired peduncles De Candolle gave the name *P. capsularis* var. *geminifolia*, an obvious error for *geminiflora*. Roemer, who usually dealt with literature rather than with herbarium specimens, assigned the name *Decaloba Smithii* to Smith's description of *P. capsularis*, adding "non L." and citing De Candolle's varietal name in synonymy. Points which Roemer gives in his key to *D. Smithii* apply to true *P. capsularis*.

This rather complicated matter is easily explained. The first Plumier plate is *P. capsularis* (the second, apparently playing no part in Smith's description, is *P. rubra*). The plant with peduncles in pairs is *P. sexflora*. The name *Decaloba Smithii*, eliminating the "*geminiflora*" citation, is a synonym of *P. capsularis*.

LOCAL NAMES: "Calzoncillo" (Salvador); "maracujá branco miudo" (Brazil).

110. **Passiflora rubra** L. Sp. Pl. 956. 1753.

Granadilla rubra Moench, Meth. Pl. Suppl. 15. 1802.

(?)*Passiflora bilobata* Vell. Fl. Flumin. 9: *pl. 78*. 1827. Not *P. bilobata* Juss.

(?)*Passiflora lunata* Vell. Fl. Flumin. 9: *pl. 80.* 1827. Not *P. lunata* J. E. Sm. or Willd. or Juss.

(?)*Passiflora obscura* Lindl. Trans. Roy. Hort. Soc. London 7: 48. 1830.

Decaloba rubra M. Roemer, Fam. Nat. Syn. 2: 153. 1846.

(?)*Decaloba bilobata* M. Roemer, Fam. Nat. Syn. 2: 154. 1846.

(?)*Decaloba semilunaris* M. Roemer, Fam. Nat. Syn. 2: 154. 1846.

(?)*Decaloba obscura* M. Roemer, Fam. Nat. Syn. 2: 157. 1846.

Passiflora cisnana Harms, Bot. Jahrb. 18: Beibl. 46: 5. 1894.

Stem 3–5-angled, striate, densely grayish-pubescent, rarely glabrescent; stipules setaceous, 5 to 8 mm. long; petioles up to 5 cm. long, glandless; leaves 2 to 8 cm. along midnerve, 4 to 10 cm. along lateral nerves, bilobed (occasionally with an intermediate third lobe nearly equal to the lateral lobes, but this usually reduced to a cusp, the lobes acute or obtuse, usually widely divergent), cordate at base, membranous, finely pubescent or rarely softly hirsute; peduncles solitary, very rarely in pairs, subequaling the petioles, articulate near apex; bracts none; flowers up to 5 cm. wide; sepals linear-lanceolate, 1 to 3 cm. long, 3 to 6 mm. wide, acutish, conspicuously 3-nerved, more or less pubescent and reddish or greenish without, glabrous and white within; petals half as long as the sepals, 2 to 4 mm. wide, white; corona filaments in 1 or 2 series, the outer narrowly liguliform or nearly filiform above middle, 5 to 10 mm. long, purple or lavender proximally, green or white distally, frequently a second series of minute (barely 2 mm. long) filaments present; operculum membranous, very slightly plicate, minutely fimbrillate; limen annular, subcupuliform; ovary subglobose, densely hirsute with long, white or brownish hairs; fruit ovoid or obovoid, 2 to 2.5 cm. long, 1.5 to 1.8 cm. wide (at times up to 5.5 cm. long and 2.5 cm. wide), rounded or abruptly acute at apex, tapering at base, sub-10-angled, hirsute, at length glabrate, reddish; seeds ovate, about 4 mm. long, 2 mm. wide, mucronate, black, transversely sulcate, the ridges about 6, smooth.

TYPE LOCALITY: Jamaica (first locality given in *Species Plantarum,* 1753).

ILLUSTRATIONS: Plum. Pl. Amer. *pl. 83;* Amoen. Acad. 1: *pl. 10, f. 9;* Jacq. Icon. Pl. Rar. 1: *pl. 186;* Cav. Diss. 10: *pl. 268;* Bot. Reg. 2: *pl. 95;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 22, f. 3;* (?)Vell. Fl. Flumin. 9: *pl. 78, 80;* Gartenfl. 32: *pl. 1135, f. 1, 2.* 1883; Mutis, Icon. Pl. Ined. 26: *pl. 21.*

DISTRIBUTION: Throughout West Indies; Colombia and Venezuela to Peru and Bolivia; eastern Brazil. Sea level to 1,500 meters, rarely to 2,000 meters.

BAHAMAS: *Curtiss 56* (B, BM, F, G, Gen, HV, K, Minn, N, P, Y); *Wilson 8377* (F, Y); *Britton & Brace 271* (F, Y); *Millspaugh 2228* (F); *E. G. Britton 3301* (F, Y); *Eggers 4235* (B); *Coker 274* (Y).

CUBA: *Wright 133* (G), *201* (Bo, Brux, G, Gen, K, S, Y); *Rugel 351* (B, BM, Y), *838* (Y); *Eggers 5061* (B, K, N); *De la Sagra* (P). Limonal, *Poeppig* in 1822 (V).—Pinar del Río: *León 12535* (Y), *12588* (HS), *12912* (HS), *12924* (HS); *Ekman 10661* (S).—Habana: *Roig & León 4683* (HV); *Shafer 465* (Y).—Santa Clara: *León 4024* (HS), *5329* (HS, Y); *Luna 17* (HS); *Ekman 18854* (B, S); *Jack 5971* (N); *Bailey 12379* (N); *Clement 46* (N); *Pringle 52* (G); *Combs 279* (B, F, G, Y); *Britton & Wilson 4905* (Y); *L. B. Smith et al. 3382* (N).—Camagüey: *Acuña 4417* (HV); *Shafer 178* (F, Y); *Britton, Britton & Shafer 415* (Y).—Oriente: *Linden 1791* (B, BM, Brux, Gen, K, P), *1821* in part (BM); *Shafer 3054* (Y), *3492* (B, F, N, Y); *Ekman 1986* (S), *5864* (S), *5881* (S), *6646* (S), *7263* (S); *León 10341* (HS), *10556* (HS), *12360* (HS); *Bailey 15150* (N).

SWAN ISLAND: *G. Nelson 24* (G, N).

HAITI: *Jacquemont* in 1827 (B, K, P); *Cook 15* (N); *Miller 287* (N); *Jaeger 138* (B, N, V); *Ehrenberg* (B); *Leonard 3668* (N, Ph, Y), *3685* (N), *4767* (BM, F, G, N, Y), *7370* (N), *7394* (N), *8047* (N), *8319* (N, Y), *9265* (N); *Leonard & Leonard 11367* (N), *11549* (N, Y), *13376* (N), *13635* (N), *14120* (N); *Ekman H53* (B, S), *H444* (B, S), *H9520* (N); *Picarda 1723* (B); *Christ 2059* (B), *2084* (B); *Buch 106* (B), *167* (B), *263* (B); *Nash 418* (Y), *562* (Y), *746* (Y), *1208* (Y); *Bailey 183* (N).

DOMINICAN REPUBLIC: *Poiteau* (Gen, Ph); *Meyerhoff 144* (B); *Wright & Parry 1* (N); *Abbott 170* (N), *178* (N), *414* (N), *1751* (N), *2782* (N), *2787* (N), *2822* (N), *2835* (N), *2873* (N); *Türckheim 2584* (B), *2680* (B, BM, Brux, G, Gen, K, N, S, Y), *2774* (B), *3253* (B); *Fuertes 443* (B, BM, Cop, F, G, K, N, S, V), *1166* (B); *Eggers 2814* (B, K); *Miller 1204* (N), *1253* (N); *Taylor 42* (Y).

JAMAICA: *P. Browne* (Linn, type); *Maxon 1680* (N, Y), *1701* (N), *2171* (N, Y), *8768* (N), *8800* (N), *9525* (N); *Maxon & Killip 390* (G), *1425a* (N), *1676* (G, N, P, Y), *1706* (N, P, Y), *1735* (N), *1736* (N); *Britton 50* (Y), *418* (F, N, Y), *1568* (Y), *3134* (Y); *Fredholm 3272* (N, Y); *W. J. Thompson 7981* (B, J); *Alexander* in 1850 (K, Y); *Bancroft* (K); *Purdie* (K); *Distin* (K); *Perkins 498* (B), *1434* (B, G);

Wight 198 (F, Y); *Lloyd 1073* (F); *Lang 215* (Ph); *S. Brown 29* (Ph, Y); *Crawford 701* (Ph), *738* (Ph); *Orcutt 3438* (N).

PUERTO RICO: *Underwood & Griggs 39* (N, Y), *362* (N); *Heller 1218* (F, K, N, Y); *Shafer 2987* (N, Y); *Cook & Collins 303* (N), *374* (N); *Britton & Cowell 824* (N, Y); *Britton & Shafer 1698* (Y); *J. R. Johnston 257* (Y), *262* (Y), *668* (Y); *Wilson 279* (Y); *Stevenson 153* (N); *Krug 486* (B); *Stahl 391* (B); *Sintenis 341* (B, G, Gen, K, N, P, S), *341b* (B), *341c* (B), *1124* (B), *1724* (B), *1810* (B), *2504* (B, N), *2758* (B), *4239* (B), *6017* (B), *6979* (B); *Wydler 258* (Gen); *Kuntze 469* (Y).

ST. CROIX: *L. C. Richard* (P).

ST. THOMAS: *Eggers 962* (B, Brux, G, N, P); *Britton & Marble 1216* (N, Y).

ST. JAN: *Britton & Shafer 584* (N, Y).

ST. KITTS: *Britton & Cowell 103* (Y).

SABA: *Boldingh 1488* (Ut), *1494* (Ut), *1764* (Ut), *2217* (Ut, Y).

ST. EUSTATIUS: *Boldingh 2024* (Ut).

ST. MARTIN: *Boldingh 3292* (Ut).

ANTIGUA: *Rose, Fitch & Russell 3459* (B, G, N, Y).

MONTSERRAT: *Shafer 358* (F, N, Y), *619* (F, N, Y).

GUADELOUPE: *Duss 600 (P)*, *2231* (B, Cop, F, N, Y); *Duchassaing* in 1849 (B, P); *Isert* in 1787 (Cop).

DOMINICA: *L. C. Richard* (P); *Ramage* in 1888 (K); *Lloyd 553* (Y).

MARTINIQUE: *Plée* (P); *Hahn 868* (P), *910* (P); *Duss 872* (B, Y).

ST. VINCENT: *H. H. Smith 607* (B, G, K, Y).

TRINIDAD: *Britton & Hazen 1605* (G, K, N, Y); *J. R. Johnston 11* (G); *Crueger* (K); *Sieber 241* (B, BM, Gen, P, V); *Fendler 379* (BM, K); *Trinidad Herb. 2981* (K, T), *6424* (T), *9373* (T), *10968* (T), *11173* (T); *Broadway 6995* (K, Mo, Ph); *Kuntze 786* (Y).

VENEZUELA: *Fendler 1877* (K).—Federal District: Caracas, *Moritz 230* (B).—Aragua: Ocumaré, *Pittier 11387* (N).—Mérida: *Moritz 1314* (B).

COLOMBIA: Cundinamarca: Anolaima, *Dawe* in 1919 (K); *Archer 3309* (N).—Caldas: Salento, *Pennell 9084* (N). Río Campoalegre, *Pennell 10183* (G, N, Y). San José, *Pennell 10240* (N, Ph).—El Valle: Zarzal, *Pennell, Killip & Hazen 8541* (N). Restrepo, *Killip 11257* (N). Versailles, *Dawe 839* (K, N).—El Cauca: Río Ojar, *Lehmann 3364* (K).

ECUADOR: *Jameson* in 1871 (K, S).—Manabi: El Recreo, *Eggers 15584* (F).—Guayas: Teresita, *Stevens 198* (N). Barraganetal, *Stevens 328* (N).—Bolívar: San Miguel, *Stevens 202* (N).—Chimborazo: Huigra, *Rose 22275* (N, Y); *Hitchcock 20747* (G, N, Y).—Azuay: Cumbre, *Rose 22984* (N).—Loja: Cuesta de Cisna, 1,200 to 1,500 meters, *Lehmann 4833* (B, type of *P. cisnana*, K). Loja, *Rose 23343* (G, N, Y).

PERU: *Ruiz & Pavón* (Ma).—Túmbez: Hacienda Chicama, *Weberbauer 7653* (F, N).—San Martín: San Roque, *L. Williams 7088* (N). Tarapoto, *Ule 6546* (B, Gen, Go).—Huánuco: Muña, *Macbride 4162* (F, N).—Junín: La Merced, *Killip & Smith 23400* (F, N, Y), *23432* (N, Y), *25371* (N). Yapas, Pichis Trail, *Killip & Smith 25441* (N, Y).—Ayacucho: Aina, *Killip & Smith 22800* (F, N, Y).—Cuzco: Uchumayo, *Bues (Herrera 2129;* N). Echarato, *Bues* in 1928 (N).

BOLIVIA: *Bang 2836* (B, BM, F, Gen, Minn, N, Ph, V, Y).—La Paz: Coroico, *Buchtien 3852* (N), *3872* (N). Milluguaya, *Buchtien 636* (N).—Santa Cruz: Buenavista, *Steinbach 8045* (G, Y).

BRAZIL: Ceará: Campo Grande, *Löfgren 314* (S).—Pernambuco: Tapera, *Pickel 2625* (N).—Rio de Janeiro: *Widgren 117* (S).

The leaves of *P. rubra* and *P. capsularis* are so similar that in the absence of flowers or fruits it is almost impossible to distinguish the two. The ovary of *P. rubra* is densely clothed with long, white or rarely brownish hairs, which usually persist on the fruit; in *P. capsularis* the ovary is merely puberulent, this indument often disappearing as the fruit matures. The fruit of *P. capsularis* is always much elongated, tapering at both ends; in *P. rubra* it shows more variation in relative length and width, though it is always more or less obovoid. In *Archer 3309*, from Colombia, the old fruits are 5.5 cm. long and 2.5 cm. in diameter near the apex. The principal corona filaments of *P. capsularis* are slenderer than those of *P. rubra*, though in a dried state this difference is not readily discernible.

In both these species there may or may not be a second series of corona filaments, an unusual condition as, apparently, all other species of *Plectostemma* are definitely one- or two-ranked. Even if present, the inner series consists of only a few filaments.

Passiflora cisnana appears to be merely a form in the mountains of Ecuador with a denser indument and smaller leaves. The type in Berlin is a poor specimen with few flowers and leaves badly pressed. An excellent specimen at Kew, collected by Jameson,

and *Rose 23343* from the type locality show flowers, fruit, and especially seeds that differ in no way from those of *P. rubra.*

LOCAL NAMES: "Pasionaria de cerca" (Cuba); "liane couleuvre" (Haiti); "bull hoof," "Dutchman's laudanum" (Jamaica); "mazo-manchachi" (Cuzco).

Section 5. **Pseudodysosmia**

111. **Passiflora adenopoda** DC. Prodr. 3: 330. 1828.

Passiflora acerifolia Schlecht. & Cham. Linnaea 5: 89. 1830.

Dysosmia acerifolia M. Roemer, Fam. Nat. Syn. 2: 151. 1846.

Ceratosepalum micranthum Oerst. Amér. Centr. *pl. 17.* 1863.

Passiflora ceratosepala Mast. Trans. Linn. Soc. 27: 630. 1871; in Mart. Fl. Bras. 13, pt. 1: 555. 1872.

Passiflora aspera Sessé & Moc. Fl. Mex. 227. 1887.

(?)*Passiflora scabra* Sessé & Moc. Fl. Mex. 228. 1887.

Stem angulate, glabrate or hispidulous; stipules semi-orbicular, 1 cm. long, 1.5 cm. wide, entire or cuspidate-toothed; petioles 3 to 5 cm. long, sparingly or densely pubescent, bearing (about 8 mm. from base of blade) 2 opposite, orbicular glands 2 to 4 mm. in diameter, their stipes slender, 6 to 8 mm. long; leaves 7 to 12 cm. long, 8 to 15 cm. wide, 3–5-lobed (lobes ovate, abruptly acuminate), cordate, 3–5-nerved, entire or remotely and minutely denticulate, hispidulous on both surfaces; peduncles solitary or in pairs, 2 to 2.5 cm. long; bracts 3, borne at middle of peduncle, lanceolate or oblong, 7 to 10 mm. long, 4 to 6 mm. wide, lacerate; flowers 2 to 7 cm. wide; sepals oblong-lanceolate, 2 to 4 cm. long, about 1 cm. wide, obtuse, becoming concave above middle, terminating in a horn 1 cm. long, greenish white or yellowish; petals linear-lanceolate, 1 to 1.2 cm. long, 0.5 mm. wide; corona filaments in a single series, filiform, 1.5 to 1.8 cm. long; white, purple-banded; operculum membranous, plicate, the margin incurved; limen annular, 1 mm. high; ovary subglobose or oblong, densely brown-tomentose; fruit globose, 2 to 2.5 cm. in diameter, puberulent; seeds obcordate, strongly flattened, narrowed at base, 6 mm. long, 4 mm. wide, 1 mm. thick, straw-colored, reticulate with 15 to 20 central meshes 0.5 mm. in diameter, surrounded by a marginal row of slightly larger (0.8 mm. in diameter) meshes, the reticulation walls acute.

TYPE LOCALITY: Mexico.

ILLUSTRATIONS: A. DC. Dess. Fl. Mex. 1: *pl. 32;* Oersted, Amér. Centr. *pl. 17;* Mutis, Icon. Pl. Ined. 26: *pl. 30.*

DISTRIBUTION: Mexico to Venezuela; eastern Peru. Foothills and lower mountain slopes, 900 to 1,600 meters altitude.

MEXICO: *Sessé & Mociño 4478* (Bo, Ma, type; probably also type collection of *P. aspera*). Tumbala, *Nelson 3378* (N).—Veracruz: Pital, *Liebmann 4072* (Cop). Atoyac, *Kerber 155* (B, BM, Bo, Brux, Cop, Gen, K, N). Cualtepec, *Liebmann 4071* (Cop). Orizaba, *Müller* in 1855 (Y); *Bourgeau 3168* (Brux, K, P), *3262* (Bo, P), *3263* (G, Gen, K, P). Barranca de Tenampa, *Purpus 4337* (B, BM, Cal, F, G, Mo, N), *8904* (Cal, Y). Cerro de Chiquihuite, *Conzatti 12* (G). Cerro de Boquerón, *Purpus 6989* (Cal), *7098* (Cal). Jalapa, *Schiede 85* (B). Córdoba, *Hahn 1617* (Bo, P).—Mexico: Tenancingo, *Reddick 349* (N).

GUATEMALA: Finca Mocca, *H. Johnson 80* (N).—Petén: Uaxactún, *Cook & Martin 142* (N); *Bartlett 12130* (N).—Santa Rosa: Cuajiniquilapa, *Heyde & Lux 6143* (B, Bo, G, Gen, N).

BRITISH HONDURAS: El Cayo, *Chanek 2* (N).

COSTA RICA: *Pittier 8460* (Brux). Mt. Jarís, *Oersted 4151* (Cop, type of *Ceratosepalum micranthum*). Cartago, *Standley 35450* (N); *Cooper 5773* (G, N); *Torres 204* (N). Tuis, *Tonduz 11411* (N, V).

PANAMA: Chiriquí: El Boquete, *Seemann 1626* (BM, K).

VENEZUELA: Federal District: Caracas, *Pittier 9930* (Gen, N, Y).—Aragua: Colonia Tovar, *Fendler 471* (Brux, G, Gen, K, Mo, P, Y); *Moritz 1719* (BM, K, V); *Karsten* in 1849 (B).

COLOMBIA: Magdalena: Santa Marta, *H. H. Smith 1529* (A, B, BM, Brux, CM, F, G, Gen, N, P, Ph, S, Ut). María Teresa, *Giacometto 6* (Ph).—Boyacá: El Humbo, *Lawrance 520* (Gen, S).—Cundinamarca: *Dawe* in 1919 (K); *Goudot 3* (Bo).—Tolima: Río Cuello, *Killip 9736* (G, N). Ibagué, *Goudot 4* (P).—Antioquia: Medellín, *Archer 1018* (N). Salgar, *Toro 1041* (Y).—Caldas: Armenia, *Pennell, Killip & Hazen 8601* (G, N, Ph, Y), *8633* (G, N, Ph, Y). Belén, *Pennell 10614* (N).

PERU: Junín: La Merced, *Macbride 5561* (F, N).

The correct name to apply to this plant and its taxonomic position were long in doubt. De Candolle's brief description of *Passiflora adenopoda* was insufficient to establish the identity of the species, and Schlechtendal and Chamisso's name *P. acerifolia* was used for this rather common plant, even at the time of Masters' monograph. The publication, in 1874, of plates of certain of these earlier described De Candollean species proved *P. adenopoda* and *P. acerifolia* to be the same.

In Oersted's flora of Central America (Amér. Centr. *pl. 17*) there is a detailed drawing, unaccompanied by description, of a plant to which the name *Ceratosepalum micranthum* is assigned. Masters transferred (in Mart. Fl. Bras. 13, pt. 1: 555; through error Masters referred to Oersted's plant as *Ceratosepalum parviflorum*) this to *Passiflora* under the name *Passiflora ceratosepala*, formulating a description from the drawing but citing no specimens. This drawing is suspiciously like the common *P. adenopoda*, though the flowers are smaller and the sepals rather more prominently horned than in that species. However, in the herbarium of Universitetets Botaniske Museum, Copenhagen, there is a specimen labeled, in Oersted's handwriting, "*Ceratosepalum glandulosum* Oerst.," with a single, badly dried flower and a small flower penciled in, which probably is the original of Oersted's drawing, and which unquestionably is *Passiflora adenopoda*.

Passiflora adenopoda was placed by De Candolle in the section *Granadilla*, presumably because of its foliaceous bracts. *Passiflora acerifolia* was described as a species of *Dysosmia*. *Passiflora ceratosepala* was treated as a species of *Plectostemma* (section *Decaloba*) by Masters. Triana and Planchon also referred the plant (as *P. acerifolia*) to *Plectostemma*. Finally, Harms created (Engl. & Prantl, Pflanzenfam. ed. 2, 21: 500. 1925) a monotypic subsection, *Pseudodysosmia*, of *Decaloba* for the species. The flower structure, position of the bracts, and the general aspect of the plant suggest *P. bryonioides* and its allies.

LOCAL NAMES: "Granadilla de monte" (Colombia); "comida de culebra" (Costa Rica).

Section 6. **Pseudogranadilla**

112. **Passiflora pulchella** HBK. Nov. Gen. & Sp. 2: 134. 1817.

(?)*Passiflora bicornis* Mill. Gard. Dict. *Passiflora* No. 13. 1768.

Passiflora rotundifolia Jacq. Obs. Bot. 2: 26. *pl. 46, f. 1.* 1767. Not *P. rotundifolia* L. or Swartz.

Passiflora rotundifolia var. *Jacquinii* DC. Prodr. 3: 326. 1828.

Decaloba Jacquini M. Roemer, Fam. Nat. Syn. 2: 156. 1846.

Passiflora divaricata Griseb. Bonplandia 6: 7. 1858.

Passiflora pulchella var. *bifidata* Mast. Bot. Jahrb. 8: 220. 1887.

Passiflora mucronata Sessé & Moc. Fl. Mex. 228. 1887 (as *muchronata*). Not *P. mucronata* Lam.

Passiflora Murucuia L. sensu Sessé & Moc. Fl. Nov. Hisp. 155. 1887. Not *P. Murucuia* L.

"*Passiflora subtriangularis beta*" Calderón, Passifloras Dilobatas del Salvador 11.

Plant glabrous throughout, or the stem minutely pilosulous; stipules narrowly linear, subfalcate, 5 to 7 mm. long; petioles 1 to 2 cm. long, glandless; leaves 2 to 6 cm. along the midnerve, 3 to 9 cm. along lateral nerves, 5 to 10 cm. between apices of lobes, bilobate one-fourth to one-half their length (or with a small third lobe occasionally present in the sinus, the lobes divaricate or suberect, truncate or rounded, often mucronulate, sometimes deeply bilobed), at base truncate, rounded, or somewhat cuneate, 3-nerved (a secondary pair arising near the middle of the central nerve), prominently reticulate-veined, ocellate beneath, coriaceous; peduncles solitary, 5 to 8 cm. long, divaricate; bracts suborbicular or ovate, 1 to 1.5 cm. long, 8 to 10 mm. wide, acutish or obtuse, abruptly tapering at base, flabellate-veined, membranous, borne about 2 mm. below base of flower, purplish red; flowers 4.5 to 5.5 cm. wide, deep blue; sepals oblong, obtuse, about 2 cm. long, 7 to 9 mm. wide; petals ovate-lanceolate or oblong-lanceolate, 1.3 to 1.5 cm. long, 4 mm. wide; corona filaments in several series, filiform, the outermost as long as the petals, those of the inner 3 or 4 series 4 to 5 mm. long, capitellate; operculum membranous, closely plicate, fimbriate, incurved; limen annular; ovary subglobose, glabrous; fruit globose, 1 to 1.5 cm. in diameter; seeds obovate, 2 to 3 mm. long, about 1 mm. wide, transversely sulcate with about 6 rugulose ridges.

TYPE LOCALITY: Near Cura, Aragua Valley, Venezuela.

ILLUSTRATIONS: Jacq. Obs. Bot. 2: *pl. 46, f. 1;* Calderón, Passifloras Dilobatas del Salvador opp. p. 12.

DISTRIBUTION: Southern Mexico to the northern coast of Colombia and Venezuela; cultivated in Hawaii. Near sea level.

MEXICO: *Sessé & Mociño 4454* (Bo, Ma, type of *P. muchronata* Sessé & Moc.), *4455* (Bo, Ma, labeled "*P. Murucuia*"); *Haenke 875* (Y).—Yucatán: Sisal, *Gaumer 23285* (F, G, N, Y). Izamal, *Gaumer 796* (Bo, F, N, Y). Mérida, *Schott 405* (BM, F). Chichen Itzá, *Steere 1111* (N). Uxmal, *Steere 2033* (N).

GUATEMALA: Chiquimula: Chiquimula, 400 meters, *Lehmann 1708* (Bo, type of *P. pulchella* var. *bifidata*).

SALVADOR: Ahuachapán, *Padilla 161* (N), *161a* (N). La Libertad, *Standley 23228* (G, N, Y). Acajutla, *Calderón 1659* (G, N).

NICARAGUA: Corinto, *Maxon 7210* (N).

COSTA RICA: Puntarenas, *Lehmann 1730* (Bo), *1735* (Bo, G, K); *Rowlee & Stork 995* (N, Y).

PANAMA: *Hayes 92* (BM, K); *Fendler 2330* (K); *Duchassaing* (P, type of *P. divaricata?*).—Panama: Bella Vista, *Killip 12028* (N); *Heriberto 218* (N). Las Sabanas, *Standley 40781* (N).

VENEZUELA: Aragua: Cura, Aragua Valley, *Humboldt & Bonpland* (B, type, BW).—Carabobo: San Joaquín, *Pittier 7908* (N).—Angostura: Ciudad Bolívar, *Bailey 1603* (N).

COLOMBIA: Magdalena: Santa Marta, *H. H. Smith 1590* (N), *1596* (B, BM, Brux, CM, F, G, Gen, K, Ma, N, P, Ph, S, Ut, Y), *1696* (Y); *Karsten* (V); *Purdie* (K). Río Frío, *Salt JJ* (G, N); *Walker 1234* (N). Lake Sapatoza, *Allen 355* (K).—Atlántico: Salgar, *Pennell 12058* (G, K, N, Ph, Y). Barranquilla, *Elias 254* (N).—Bolívar: Cartagena, *Schott 3* (Y); *Heriberto 187* (N).

This and the following five species have the foliaceous bracts of the subgenus *Granadilla* and the plicate operculum of *Plectostemma*. *Passiflora pulchella* was placed by Masters in a section of *Granadilla*, but, as Triana and Planchon quite correctly pointed out (Ann. Sci. Nat. V. Bot. 17: 155. 1873), it should be referred to *Plectostemma*. Harms has proposed (Engl. & Prantl, Pflanzenfam. ed. 2, 21: 500. 1926) the name *Pseudogranadilla* for this group of large-bracted species with a plicate operculum, ranking it as a subdivision of his section *Decaloba* (i.e., subgenus *Plectostemma*, in part, of the present treatment). *Pseudogranadilla* admittedly is an artificial section, the species here referred to it having little in common other than the foliaceous bracts. Probably *P. pulchella* is more closely related to *P. biflora*, *P. indecora* to *P. cuneata*, *P. menispermacea* to *P. erythrophylla*, *P. Kalbreyeri* to *P. bogotensis*, and *P. porphyretica* to *P. sexflora*.

This may well be the plant, collected by Houston at Cartagena, to which Miller gave the name *Passiflora bicornis*, and if so that prior name should be used. But Miller's description is indefinite, and applicable, almost as well, to *P. biflora* and forms of *P. cuneata*, and in the absence of a type specimen, it seems best to maintain the name that is in general use.

LOCAL NAMES: "Calzoncillo," "camacarlata," and "granadilla" (Salvador).

Calderón reports the plant as having diuretic properties.

113. **Passiflora indecora** HBK. Nov. Gen. & Sp. 2: 134. 1818.

Passiflora involucellata Harms, Bot. Jahrb. 18: Beibl. 46: 10. 1894.

Stem subtriangular, flexuous, puberulent; stipules narrowly linear, 7 to 9 mm. long, falcate, purplish; petioles up to 3 cm. long, glandless; leaves 3 to 7 cm. long, 3 to 6 cm. wide (or up to 9 cm. long, 6.5 cm. wide), 2-lobed one-third to one-half their length (lobes lanceolate or ovate-lanceolate, obtuse or acute), rounded at base, puberulent on both surfaces; peduncles solitary or in pairs, up to 4 cm. long; bracts broadly triangular-ovate, 10 to 12 mm. long, 9 to 10 mm. wide, abruptly acute at the base, puberulent, reddish purple; flowers 4 to 4.5 cm. wide; sepals oblong, about 1.5 cm. long, obtuse, subcoriaceous; petals about 1 cm. long, oblong, obtuse, membranous; corona filaments in 2 series, the outer liguliform, falcate-dilated at apex, 4 to 5 mm. long, distally purple, the inner series filiform, 3 to 4 mm. long, capitellate; operculum plicate; limen annular; ovary subglobose or obovoid, densely villous; fruit globose, about 1.5 cm. in diameter; seeds oblong, about 3.5 mm. long, 3 mm. wide, transversely sulcate, the ridges about 6.

TYPE LOCALITY: Near Loja, Ecuador.

DISTRIBUTION: Mountains of southern Ecuador, at an altitude of about 2,000 meters.

ECUADOR: *Jameson* (N).—Loja: Loja, *Humboldt & Bonpland* (type, B, BW, P); *Lehmann 4835* (B, type of *P. involucellata*, G, N, S); *Rose 23266* (G, N). Tablón de Oña, *Rose 23129* (N).

Passiflora indecora is a well marked species, with rather deeply bilobed leaves much like those of *P. cuneata*, but with large bracts.

The species has not been well understood, owing to the fact that certain important details were lacking in the original description. Masters referred here a specimen of *P. Candollei* collected at Chachapoyas, Peru, by Mathews, and Harms described a specimen of Lehmann's, which clearly is *P. indecora*, as *P. involucellata*. The bracts have fallen off the specimen at Berlin from which Kunth evidently drew up the original description. Regarding these he merely says, "Bracteae caducae; tres ovatae teste Bonplandio." The specimen of the type collection in the Bonpland Herbarium at Paris bears relatively large bracts, identical with those of the type of *P. involucellata*.

114. **Passiflora rugosissima** Killip, sp. nov.

Ubique dense brunneo-velutina; stipulae lineari-subulatae; petioli eglandulosi; folia bilobata vel subtrilobata, lobo medio obsoleto, lobis

triangularibus acutis, coriacea, supra rugosissima; pedunculi bini, 2- vel 3-furcati, floribus confertis; bracteae bracteolaeque similes, foliaceae, flabellato-laceratae; sepala anguste lanceolata; petala linearia; corona biseriata; operculum plicatum; ovarium breviter villosum; fructus subglobosus; semina transverse sulcata.

Vine, densely brunneo-velutinous throughout; stem terete, 2 to 3 mm. in diameter; tendrils axillary, stout; stipules linear-subulate, 7 to 9 mm. long, 0.7 to 0.8 mm. wide, subfalcate, purplish; petioles stout, up to 1.5 cm. long, glandless; leaves 3 to 6 cm. along the mid-nerve, 4 to 9 cm. along the lateral nerves, 5 to 10 cm. between the apices of the lobes, bilobed (lobes triangular, acute, the sinus shallow, usually with an obscure lobe), cordulate at the base, coriaceous, strongly rugose above, 3-nerved, reticulate-veined, the nerves and veins elevated on the under surface; peduncles in pairs, 1.5 to 2 cm. long, 2 or 3 times forked, the branches short and the flowers crowded, the ultimate branches or pedicels slender, 1 to 1.5 cm. long; bracts and bractlets similar, broadly ovate to ovate-lanceolate in general outline, in 3's, membranous, green, 7 to 10 mm. long, 3 to 12 mm. wide, irregularly flabellate-lacerate, the segments acuminate; calyx patelliform, up to 5 mm. in diameter; sepals narrowly lanceolate, 9 to 10 mm. long, about 3 mm. wide, subacute, greenish yellow; petals linear, 6 to 7 mm. long, 2 to 2.5 mm. wide, thin, white; corona filaments filiform, in 2 series, subequal, 2 to 2.5 mm. long; operculum membranous, closely plicate, about 1 mm. high; limen a low, annular ridge; gynophore about 5 mm. long; ovary globose, short-villous; styles 3, free to the base; fruit subglobose, about 1 cm. in diameter, lustrous, black, short-villous; seeds ovate, about 3 mm. long and 2 mm. wide, transversely sulcate with about 7 narrow, rugulose ridges.

Type in the United States National Herbarium, No. 1,685,159, collected on Mt. Orando, State of Chiapas, Mexico, December 20, 1936, by E. Matuda (No. 477). Also collected at Finca Juárez, in the same state (*Matuda 1754;* N).

The compound inflorescence and the shape of the leaves of *P. rugosissima* suggest *P. sexflora*, but the large, lacerate bracts at once differentiate it from that species. As already has been pointed out in the comments on *P. pulchella*, *Pseudogranadilla* is an artificial group, the species having little to bring them together other than foliaceous bracts.

The description of *P. pannosa* Hook. & Arn. (not J. E. Sm.) applies to the present species in certain details, but on the whole is better for *P. porphyretica* var. *angustata*.

115. **Passiflora menispermacea** Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 168. 1873.

Plant reddish throughout when dry; stem angulate, sulcate, appressed-puberulent; stipules subulate, 3 mm. long, early deciduous; petioles 1 to 2 cm. long (probably longer), slender, glandless, puberulent; leaves suborbicular or somewhat broader than long, 2 to 4.5 cm. long, 2.5 to 6 cm. wide, shallowly 3-lobed at apex (lobes rounded, mucronulate, the middle 1.5 to 2 cm. wide at base, subequaling or slightly longer than lateral lobes), rounded at base, sparingly ocellate beneath, membranous, glabrous; peduncles 1 to 1.5 cm. long, puberulent; bracts foliaceous, oblong, 1.5 to 2 cm. long, 1 to 1.5 cm. wide, free to the cordate base, obtuse, mucronulate, obscurely serrulate in lower half, sessile, membranous, bright green when dry; sepals linear-oblong, 1 to 1.5 cm. long, about 0.5 cm. wide, obtuse; petals oblong, 0.8 to 1 cm. long, 0.4 to 0.6 cm. wide, obtuse, thinner than sepals; corona filaments in 2 series, the outer ligulate, subequal to petals, dilated above, the inner filiform, about 2 mm. long; operculum plicate, minutely denticulate at margin; limen annular; ovary subglobose, densely rufo-sericeous.

TYPE LOCALITY: Quebrada Azufral, Quindío Trail, Colombia.

DISTRIBUTION: Known only from the type locality in the Central Cordillera of Colombia.

COLOMBIA: Tolima: Quebrada Azufral, Quindío Trail, *Goudot 9* (P, type).

This plant is much unlike the other species of *Pseudogranadilla*. Except for the three shallow lobes the leaves are nearly circular in outline and of a decidedly reddish color when dry; the bracts are much larger than those of *P. pulchella* or *P. Kalbreyeri*, more like those of *P. laurifolia;* the peduncles and petioles are much shorter and the flowers much smaller than in the case of most of its relatives. It is evidently very scarce, even at the type locality. I looked carefully for this particular species along the Quindío Trail near the crossing of the Quebrada Azufral, but failed to find it. A sterile plant (*Killip 11813*) collected at Córdoba, in the Pacific coastal region of Colombia, appears to be this species, but definite extension of the range on such unsatisfactory evidence is hardly justifiable.

116. **Passiflora Kalbreyeri** Mast. Journ. Bot. Brit. & For. 21: 36. 1883.

Plant densely ferruginous-tomentose throughout; stem subquadrangular; stipules linear-subulate, 5 to 7 mm. long, falcate,

purplish; petioles up to 1.5 cm. long, glandless; leaves suborbicular, becoming broadly oblong, 3 to 10 cm. long, 3 to 9 cm. wide, truncate and shallowly 3-lobed (lobes obtuse, usually mucronulate) or merely sinuate at apex, rounded or subcuneate at base, subcoriaceous; peduncles in pairs, 2 to 4 cm. long; bracts oblanceolate, 6 to 8 mm. long, 2 to 3 mm. wide, 3–4-toothed toward apex, deep purple; flowers up to 4 cm. wide; sepals lanceolate-oblong, about 1.5 cm. long, 5 to 6 mm. wide, obtuse, pinkish white within; petals lanceolate, 5 to 7 mm. long, 2 to 4 mm. wide, pinkish white; corona filaments in 2 series, the outer filiform, slightly dilated above, 5 to 6 mm. long, proximally white, distally purple, radiate, the inner filiform, 4 to 5 mm. long, white, erect; operculum closely plicate, minutely fimbrillate; limen annular; ovary globose, densely setose; fruit globose, about 1.5 cm. in diameter, sparingly setose; seeds broadly ovoid, transversely sulcate, the ridges 5 or 6.

TYPE LOCALITY: Ocaña, Colombia.

DISTRIBUTION: Mountains of central Venezuela to the eastern part of the Eastern Cordillera of Colombia, between 1,500 and 2,500 meters altitude.

VENEZUELA: Federal District: *E. Pittier 167* (G, Gen). Catuche, *Pittier 6196* (B, N, Y), *9590* (Gen, N). Upper Cotiza, near Caracas. *Pittier 7344* (N), *7567* (N).

COLOMBIA: Norte de Santander: Espíritu Santo, *Kalbreyer 1253* (B, K, type). Pamplona, *Killip & Smith 19775* (A, G, N, Y), *19801* (A, G, N, Y). Tapatá, *Killip & Smith 20284* (A, G, N, Y), *20493* (A, G, N, Y). Between Toledo and Pamplona, *Killip & Smith 20557* (A, G, N, Y).

This well marked species is apparently of limited range, although Mr. Smith and I found it quite common in the Zulia drainage basin of eastern Colombia. In describing the plant as "pubescent" Masters rather understated the character of the indument, for in reality the plant is very densely ferruginous-tomentose.

117. **Passiflora porphyretica** Mast. Bot. Gaz. 20: 538. *pl. 36*. 1895.

Stem terete, densely pubescent or hirsute; stipules cordate, 8 to 10 mm. long, 5 to 7 mm. wide, more or less chartaceous, reddish or violet-purple, glabrate above, sparsely pilosulous below, the margin densely ciliate; petioles 1 to 2.5 cm. long, glandless, densely hirsute; leaves orbicular in general outline (those of the main stem 5 to 10 cm. in length and breadth, those of the branches 2 to 3 cm. long and 3.5 to 4 cm. wide), shallowly 2–3-lobed (lobes obtuse or sometimes

acute and aristulate), subrotund or subcordate at base, 3-nerved, reticulate-veined (nerves and veins conspicuous on lower surface), strigillose and slightly scabrous above, densely setulose-tomentose beneath; peduncles in pairs, on the main stem or usually on leafy, axillary branches, the leaves frequently wanting so that the inflorescence appears racemose; bracts similar to the stipules, broadly cordate, 10 mm. long, 8 mm. wide, obtuse, reddish or violet-purple, glabrate without, pilosulous within; flowers about 3 cm. wide; sepals linear-oblong, 1.5 cm. long, 3 mm. wide, very densely pilose without, glabrate within; petals linear-oblong, 8 mm. long, obtuse, pink; corona filaments filiform, spotted with purple, in 2 series, the outer filaments 6 to 8 mm. long, the inner 2 mm. long, capitellate; operculum about 2 mm. high, closely plicate, dark red below, pale yellow above, denticulate, slightly incurved; limen erect, minutely pulverulent above; ovary globose, densely white-pilose; fruit globose, about 1 cm. wide, transversely sulcate with 6 to 8 ridges, the ridges rugulose, the axis slightly curved.

TYPE LOCALITY: Jutiapa, Guatemala.

ILLUSTRATION: Bot. Gaz. 20: *pl. 36*.

DISTRIBUTION: Southern Mexico to southern Guatemala, from 400 to 1,300 meters altitude.

MEXICO: *Née* (Ma); *Haenke 848* (Pr).—Michoacán: Río Coyaquilla, *Langlassé 837* (B, G, Gen, K, N, P).—Colima: Colima, *Orcutt 4524* (F, Mo, N).—Guerrero: Acapulco, *Palmer 360* (Cal, F, G, K, N, Y).—Oaxaca: Nopala, *Nelson 2429* (N). Plan de Minas, *Conzatti 4545* (N).

GUATEMALA: Jutiapa: Jutiapa, 425 meters, *Heyde & Lux* (*J. D. Smith 6334*, B, Bo, Gen, N, type).

Because of a general similarity in the shape of the leaves, this species might be confused with *P. sexflora*. The large bracts, varying from bright red to violet-purple, the nonfasciculate inflorescence, and the larger flowers readily distinguish it from that, however.

117a. **Passiflora porphyretica** var. **angustata** Killip, var. nov.

Passiflora pannosa J. E. Sm. sensu Hook. & Arn. Bot. Beechey Voy. 292. 1841. Not *P. pannosa* J. E. Sm.

Stipulae anguste lanceolatae vel setaceae, ca. 6 mm. longae, ad 0.8 mm. latae.

Stipules narrowly lanceolate or setaceous, about 6 mm. long, 0.8 mm. wide or less. Otherwise as in the species.

Type in the United States National Herbarium, No. 1,318,700, collected at Puerto Vallasta, Jalisco, Mexico, altitude 100 meters, December 17, 1926, by Ynes Mexia (No. 1306). Duplicate at Geneva.

DISTRIBUTION: West-central Mexico.

MEXICO: Jalisco: San Sebastián, 1,500 meters, *Mexia 1526* (Gen, N, Y). Tuxpán, *Purpus 486* (N).—Mexico: Ixiapán, *Hinton 2936* (K, N). Anonas, *Hinton 3569* (K, N).

Except for the narrow stipules, these plants seem to be identical with typical *P. porphyretica*. They represent undoubtedly the plant, likewise collected in Jalisco, referred questioningly by Hooker and Arnott to *P. pannosa* J. E. Sm., a species that is synonymous with *P. sexflora*. Hooker and Arnott describe their plant as having lanceolate-subulate stipules, a 5-parted calyx (i.e., apetalous), and three orbiculate, short-acuminate, concave bracts, entire or few-toothed at the apex. With the exception of the statement that the flowers are apetalous, this description answers very well the above specimens. However, as already noted in the case of other species, inconspicuous petals were frequently overlooked by early botanists.

Section 7. **Hahniopathanthus**

118. **Passiflora Hahnii** (Fourn.) Mast. in Mart. Fl. Bras. 13, pt. 1: 569. 1872.

Disemma Hahnii Fourn. Rev. Hort. 41: *pl. 430*. 1869.

Passiflora guatemalensis Wats. Proc. Amer. Acad. 22: 473. 1887.

Plant glabrous throughout; stem wiry, terete, angulate above, striate; stipules reniform, 1 cm. long, 1.2 to 1.7 cm. wide, setiferously toothed; petioles 1.5 to 3 cm. long, glandless; leaves broadly ovate-lanceolate in general outline, 5 to 8 cm. long, 3.5 to 7 cm. wide, entire or usually inconspicuously lobed 1.5 to 3 cm. from the apex (lobes setosely tipped), peltate, 3–5-nerved, membranous, rarely subcoriaceous; peduncles solitary, up to 7 cm. long; bracts 2, cordate, 2.5 to 3 cm. long, 1.5 to 2 cm. wide, denticulate toward base, the teeth and the apex setosely tipped or subentire; flowers 4 to 6 cm. wide; sepals and petals similar, oblong, 2 to 3 cm. long, 0.7 to 0.9 cm. wide, obtuse, radiate, white or cream-colored; corona filaments yellow, in 2 series, the outer up to 1.5 cm. long, dilated at apex, spreading, the inner up to 5 mm. long, clavate, erect; operculum membranous, closely plicate, 2.5 to 3 mm. high, the margin incurved; limen annular; ovary bluish black, glaucous, subglobose or ovoid; fruit globose, 3 to 3.5 cm. in diameter; seeds ovate-oblong, slightly flattened,

curved, about 5 mm. long, 4 mm. wide, each face reticulate, with about 40 reticulations.

TYPE LOCALITY: Mexico (type a specimen cultivated in the Jardin des Plantes, Paris, introduced by Hahn).

ILLUSTRATIONS: Rev. Hort. 41: *pl. 430;* Bot. Mag. 115: *pl. 7052;* Gard. Chron. n. ser. 10: 305. *f. 55.* 1878; 12: 504. *f. 81.* 1879; Mutis, Icon. Pl. Ined. 26: *pl. 19.*

DISTRIBUTION: Central Mexico to Costa Rica; Central Cordillera of Colombia; between sea level and 1,400 meters altitude.

MEXICO: *Hahn* (K, type collection). Chiconguraco, *Schiede* (B). —Veracruz: Orizaba, *Bourgeau 3337* (P).—Guerrero: Acapulco, *Liebmann 4095* (Cop).—Chiapas: Between Tumbala and El Salto, *Nelson 3395* (N).

GUATEMALA: Río Dulce, Chocón, *Watson 81* (G, type of *P. guatemalensis,* K), *249* (G).—Petén: Tikal District, *Cook & Martin 67* (N). Remate, *Lundell 2015* (N).—Izabal: Izabal, *Watson 405* (G).

HONDURAS: San Pedro Sula, Santa Bárbara, *Thieme 5246* (N). Progreso, Yoro, *Standley 54992* (N).

BRITISH HONDURAS: El Cayo, *Chanek 3* (N). Mountain Pine Ridge, El Cayo District, *Bartlett 13080* (Mich).

COSTA RICA: Llanuras de Santa Clara, *J. D. Smith 6529* (N).

COLOMBIA: Caldas: Armenia, *Pennell, Killip & Hazen 8670* (B, G, N, Ph, Y). San José, *Pennell 10213* (G, N). Quindío, *André 2143bis* (K).

This is the type species of Harms' subsection *Hahniopathanthus,* of *Decaloba.* Under the present arrangement of the subdivisions of *Passiflora* it becomes a section of the subgenus *Plectostemma.* To the original species I am adding *P. Cookii,* which obviously is closely allied to it, and *P. membranacea.* The latter has usually been referred to *Granadilla* but, as will be noted later, it is better placed with *P. Hahnii.* In these three species there are no nectar-secreting glands in any form, either as petiolar appendages, ocellae on the leaf surfaces, or marginal glands on the bracts or leaves. The seeds are reticulate, as in the case of species of *Plectostemma,* section *Cieca.*

The South American specimens here cited are without flowers, but the vegetative parts are identical with those of Mexican and Central American specimens. This is an interesting extension of range.

119. **Passiflora Cookii** Killip, Journ. Wash. Acad. Sci. 12: 256. 1922.

Plant glabrous throughout; stem terete, striate, glaucous; stipules reniform, 1.5 cm. long, 3 to 4 cm. wide, crenate, glaucous; petioles 3 to 4 cm. long, glandless; leaves broadly ovate, 7 to 8 cm. long, 6 to 7 cm. wide, very obscurely 3-lobed (middle lobe deltoid, obtuse, mucronulate), or with a single lateral lobe, peltate about 1.2 cm. from the truncate base, quintuplinerved, dark green above, glaucous beneath; peduncles about 8 cm. long; bracts 2, cordate, about 5 cm. long and 4 cm. wide, entire, thin-membranous; flowers 3.5 to 4.5 cm. wide, white; sepals ovate-lanceolate, 1.5 cm. long, 1 to 1.2 cm. wide, obtuse, radiate; petals ovate-lanceolate, 1.5 cm. long, 0.8 cm. wide, abruptly narrowed at base, obtuse, white, spotted with red; corona filaments in 2 series, the outer 1 cm. long, dilated at apex, the inner barely 3 mm. long, capitate; operculum membranous, plicate, the margin incurved, fimbrillate; limen annular; ovary subglobose.

TYPE LOCALITY: Finca Sepacuité, Department of Alta Verapaz, Guatemala.

DISTRIBUTION: Southern Mexico and northern Guatemala.

MEXICO: Veracruz: Río de Puerto Moneda, Sierra Grande del Sur, *Purpus 10357* (N).

GUATEMALA: Alta Verapaz: Finca Sepacuité, *Cook & Griggs 593* (type).

At the time this species was described its bracts were unknown, though its relationship with *P. Hahnii* was obvious. The Purpus specimen has an involucre of two large bracts, which completely lack the setiferous lobes of those of *P. Hahnii*. Additional points of differentiation are the larger *crenate* stipules and the smaller flowers of *P. Cookii*.

120. **Passiflora membranacea** Benth. Pl. Hartw. 83. 1841.

Cieca membranacea M. Roemer, Fam. Nat. Syn. 2: 140. 1846.

Plant glabrous throughout; stem terete or subangulate, striate; stipules cordate-reniform, 1 to 1.5 cm. long, 1.5 to 3 cm. wide, obscurely crenulate; petioles 2 to 4 cm. long, glandless; leaves orbicular in general outline, 5 to 10 cm. long and wide, obscurely 3-lobed at apex, peltate about 5 mm. from base, 3-nerved, membranous; peduncles solitary, 9 to 15 cm. long, very slender; bracts 2 or 3, cordate-ovate or cordate-reniform, 3 to 5 cm. long, 2 to 4 cm. wide,

obtuse or rounded at apex, red, purple-red, or rose-color, borne 5 to 10 mm. below base of flower, chartaceous; flowers pea-green or cream; calyx tube broadly campanulate, about 2 cm. wide at base; sepals oblong-lanceolate, 3.5 to 4 cm. long, about 1 cm. wide, obtuse, erect; petals oblanceolate, 3.5 to 4 cm. long, about 0.8 cm. wide; corona filaments in 2 series, the outer 0.8 to 1 cm. long, filiform, deep red, the inner capillary, barely 2 mm. long, capitellate; operculum membranous, closely plicate, incurved, lobed one-third its length, the lobes obtuse, minutely fimbrillate; limen annular, near base of gynophore; gynophore about 4 cm. long; ovary narrowly ellipsoidal, 3-grooved; fruit ovoid, about 4 cm. long and 3 cm. wide, coriaceous; seeds oblong-ovate, about 4.5 mm. long, 3 mm. wide, finely reticulate, the walls between the areoles thick (hence, punctate), the axis strongly curved.

TYPE LOCALITY: Volcán de Agua, Guatemala.

DISTRIBUTION: Southern Mexico to Costa Rica, 1,900 to 3,000 meters altitude.

MEXICO: Chiapas: *Ghiesbreght 113* (K), *863* (G). Cerro del Boquerón, *Purpus 7028* (Cal).

GUATEMALA: *Savage* in 1846 (P). Cuesta de Argenta, *Hartweg* (K).—Quiché: Chiul, *Heyde & Lux* (*J. D. Smith 3092*, B, G, N). Volcán Santa María, *Nelson 3728* (G, N).—Quezaltenango: *Vaght 288* (N).—Sacatepéquez: Volcán de Agua, *Hartweg* (K, type); *Maxon & Hay 3754* (N, Y); *Kellerman 4773* (N); *Lehmann 1492* (Bo, K, N).—Chimaltenango: Santa Elena, *Skutch 274* (N).—Suchitepéquez: Volcán Atitlán, *Skutch 2129* (N).

HONDURAS: Pimiento, *Niederlein 208* (B).

COSTA RICA: Cuesta de Los Borucas, *Pittier 10537* (Brux, N). Barba, *Pittier 1957* (Brux). Volcán de Poás, *Standley 34627* (N). Las Nubes, *Standley 38746* (N), *38765* (N). El Copey, *Standley 41928* (N), *42780* (N). San José, *Wercklé* (B). Cerro de Las Lajas, Heredia, *Standley & Valerio 51571* (N). Yerba Buena, Heredia, *Standley & Valerio 49955* (N). Volcán Irazú, *Cufodontis 404* (N, V).

Masters placed *P. membranacea* in *Granadilla;* Harms treated it as the sole representative of his section 5 (unnamed) of *Granadilla.* The 2-ranked corona, plicate operculum, and annular limen, however, are characteristic of *Plectostemma*, and indeed the general outline of the leaves and the shape and coloring of the bracts are much as in *P. Hahnii* and *P. Cookii.* I am, therefore, placing it in the section

Hahniopathanthus of that subgenus, though the erect sepals and petals are not characteristic of these two other species of that group, and the large flowers are more suggestive of *Granadilla*.

In my account of the Passifloraceae of the Mayan area the color of the flowers was given as red. This error was due to collectors' notes, which clearly had reference to the color of the bracts. The actual color has been noted by Cufodontis and Skutch.

Subgenus VI. CHLOROPATHANTHUS

121. **Passiflora viridiflora** Cav. Icon. Pl. 5: 15. *pl. 424*. 1799.

Tacsonia viridiflora Juss. Ann. Mus. Hist. Nat. 6: 389. 1805.

Passiflora tubiflora HBK. Nov. Gen. & Sp. 2: 139. 1817.

Murucuja viridiflora Spreng. Syst. Veg. 3: 43. 1826.

Synactila viridiflora Raf. Fl. Tellur. 4: 104. 1838.

Psilanthus viridiflorus M. Roemer, Fam. Nat. Syn. 2: 198. 1846.

Plant glabrous throughout; stem wiry, angulate, flattened; stipules linear-lanceolate, about 5 mm. long, acute; petioles up to 6 cm. long, biglandular at or slightly below middle, the glands saucer-shaped, sessile, 1 to 3 mm. in diameter; leaves 4 to 7 cm. long, 6 to 9 cm. wide (the lowermost up to 16 cm. long and 25 cm. wide), deeply 3-lobed (lobes ovate, ovate-oblong, or nearly orbicular, obtuse or rounded, rarely acutish, the middle lobe narrowed at its base, the lateral lobe widely divergent), 3–7-nerved, reticulate-veined, peltate, entire and thickened at margin, coriaceous, dark green and lustrous above, paler beneath; peduncles solitary or in pairs, 1 to 2 cm. long, articulate at or slightly above middle; bracts apparently none; flowers green; calyx tube cylindric, 1 to 1.5 cm. long, 3 to 7 mm. wide at the swollen and strongly sulcate base; sepals linear, 1 to 1.5 cm. long, 2 mm. wide, acute; petals none; corona filaments in a single series, filiform, 2.5 to 3 mm. long, borne at the throat of the tube, erect; operculum membranous, not plicate, 2.5 to 3 mm. long, minutely fimbrillate, borne at the base of the narrowed portion of the tube; limen membranous, 0.8 to 1 mm. long, crenulate; ovary narrowly ellipsoidal; fruit subglobose, 1.5 to 2 cm. in diameter; seeds obovate, 4 to 5 mm. long, 3 mm. wide, abruptly acute at base, flattened, each face reticulate at center with 3 or 4 circular meshes, reticulate toward the margin with about 12 oblong meshes.

TYPE LOCALITY: Acapulco, Mexico.

ILLUSTRATION: Cav. Icon. Pl. 5: *pl. 424*.

DISTRIBUTION: Southern Mexico, at low elevations.

MEXICO: *Sessé & Mociño 4474* (Bo, Gen, Ma); *Haenke 870* (Pr), *873* (Pr).—Veracruz: San Agustín, *Liebmann 4136* (Cop), *4139* (Cop). Mirador, *Liebmann 4134* (Cop).—Guerrero: Acapulco, *Née* (Ma, type); *Humboldt & Bonpland* (P, type of *P. tubiflora*); *Palmer 237* (B, Cal, F, G, K, N, Y); *Beechey* (K); *Le Jolis* (Bo); *Barclay 1966* (BM). Between Juchitango and Ometepec, *Nelson 2317* (N). El Ocote, *Langlassé 552bis* (Gen, K).—Oaxaca: Between Mixtepec and Colotepec, *Nelson 2446* (G, N). Pochutla, *Reko 3753* (N); *Popenoe 818* (NA). Tututepec, *Conzatti 4501* (N).

This species has been placed variously in *Tacsonia*, *Murucuja*, and *Psilanthus*. From all these it differs in several important details. Harms has recently made it the type of a new section (*Chloropathanthus*), a solution suggested by Triana and Planchon. It is a well marked species, with no close relatives other than *P. lancifolia*, of Jamaica.

LOCAL NAME: "Flor del aresillo."

122. **Passiflora lancifolia** Desv. in Hamilt. Prodr. 48. 1825.

Passiflora regalis Macf. Fl. Jamaica 2: 151. 1850.

Passiflora lanceolata [error] Desv. ex G. Don, Hist. Dichl. Pl. 3: 54. 1834.

Decaloba lancifolia M. Roemer, Fam. Nat. Syn. 2: 159. 1846.

Plant densely or sparingly pilose with yellowish or grayish white hairs, becoming glabrate; stem compressed; stipules linear-subulate, 4 to 7 mm. long; petioles 1 to 2 cm. long, biglandular near apex, the glands stipitate, 1 to 1.2 mm. long; leaves lanceolate, subentire or 3-lobed (lobation variable, the middle lobe produced, lanceolate, 3 times as long as lateral, or the blade deeply lobed with oblong or obovate lobes, the lobes acute or rounded), rounded or cordulate at base, 3–5-nerved, entire at margin, subcoriaceous, subappressed-pilose to glabrous; peduncles solitary or in pairs, filiform, 2 to 4 cm. long, articulate near apex; bracts filiform, 1 to 2 mm. long, borne above middle of peduncle, deciduous; flowers maroon or scarlet; calyx bowl-shaped, 5 to 8 mm. long, 7 to 10 mm. wide, ventricose at base; sepals linear, about 2 cm. long, 2 to 4 mm. wide, acute, erect; petals none; corona filaments in a single series, filiform, 5 to 7 mm. long, red below, yellowish(?) above; operculum membranous, 1.5 to 2 mm. long, erect, crenulate at margin, white, borne at throat of tube, subadnate to corona filaments; limen apparently wanting; ovary elliptic, tapering at apex, glabrous.

TYPE LOCALITY: "Antilles."

DISTRIBUTION: Liguanea Plain and lower slopes of Blue Mountains, Jamaica.

JAMAICA: Luchy Valley and Drummond Castle, Port Royal Mountains, *Macfadyen* (type of *P. regalis;* BM, K). St. David, *Wilson* (BM). Newcastle, *Harris 1440* (J); *Hart* (BM). Silver Hill, *Harris 6536* (BM). Between Chestervale and Silver Hill, *Britton 358* (Y). Farm Hill, *Orcutt 3437* (N). Arntully, *Orcutt 3841* (N). Moy Hall, *Orcutt 6884* (N). "Antilles" (probably Jamaica), *Desveaux Herbarium* (P, type).

No satisfactory place is provided for this rare Jamaican species among Harms' subdivisions. Although it has the highly colored flowers of the West Indian *Murucuja* and *Pseudomurucuja,* the absence of petals and the gland-bearing petioles indicate a closer relationship with the green-flowered Mexican species, *P. viridiflora.* The leaves of the type specimen of *P. regalis,* which probably is only a variant of *P. lancifolia,* greatly resemble those of forms of *P. viridiflora.*

Subgenus VII. MURUCUJA

123. **Passiflora orbiculata** Cav. Diss. 10: 456. *pl. 286.* 1790.

Murucuja orbiculata Pers. Syn. Pl. 2: 222. 1807.

Peremis orbiculata Raf. Fl. Tellur. 4: 104. 1838.

Pentaria orbiculata M. Roemer, Fam. Nat. Syn. 2: 187. 1846.

Stem subtriangular, striate, glabrous or very sparingly pilosulous toward end; stipules linear-subulate, 2 to 4 mm. long, slightly falcate; petioles 1 to 3 cm. long, glandless; leaves suborbicular, 2 to 7 cm. long and wide, shallowly 3-lobed at the truncate apex (lobes rounded at apex, often mucronulate, occasionally emarginate, the middle lobe usually slightly longer than the lateral lobes), subtruncate or cordulate at base, 3-nerved, reticulate-veined (nerves and veins impressed above), few-ocellate, coriaceous, sublustrous and glabrous above, dull and essentially glabrous beneath; peduncles solitary or in pairs, 3 to 5 cm. long, articulate above middle; bracts borne at point of articulation, linear, 1 to 2 mm. long, subcoriaceous; flowers red, reddish, or violet-purple; calyx cylindric-campanulate, 6 to 8 mm. long, 7 to 9 mm. in diameter, strongly introrse-sulcate at base; sepals linear-oblong, 2.5 to 4 cm. long, 0.6 to 0.8 cm. wide, obtuse; petals linear or linear-oblong, 1 to 1.5 cm. long, 0.2 to 0.3 mm. wide, obtuse; corona an erect, cylindric membrane 1.5 to 2 cm.

long, reddish, crenulate or subentire, the margin yellowish; operculum borne at margin of tube, about 5 mm. long, dependent from base, white, irregularly lacerate-filamentose; limen none; ovary globose, glabrous; fruit globose, 1 to 1.5 cm. in diameter; seeds obovate, about 3 mm. long, 2 mm. wide, transversely sulcate, with about 6 grooves.

TYPE LOCALITY: Dominican Republic, the original description based upon a drawing of Thouin's.

ILLUSTRATIONS: Cav. Diss. 10: *pl. 286;* G. Don, Hist. Dichl. Pl. 3: 56. *f. 5.*

DISTRIBUTION: Mountains of Hispaniola, above 1,400 meters altitude.

HAITI: *Christ 1753* (B), *1753b* (B); *Jaeger 173* (B). Morne Tranchant, *Picarda* 772 (B, Y). Furcy, *Leonard 4682* (BM, G, N, Y); *Buch 1947* (B). Pétionville, *Ekman H1330* (B, N, S). Morne de la Hotte, *Ekman H121* (B, S). Mt. Ma Blanche, *Ekman H617* (S).

DOMINICAN REPUBLIC: San Juan, Cordillera Central, *Ekman H13501* (N).

Masters was in error in identifying this species with *P. Murucuja.* As Urban has pointed out (Symb. Ant. 3: 326), the two are quite distinct, *P. orbiculata* having not only nearly orbicular leaves but a much more prominent, deeply lacerate operculum and different bracts. The corona is yellowish at the margin in *P. orbiculata,* red throughout in *P. Murucuja.*

124. **Passiflora Shaferi** Britton, Bull. Torrey Club 44: 17. 1917.

Plant glabrous throughout; stem triangular, striate, slightly flexuous; stipules linear-setaceous, 2 to 3 mm. long, falcate; petioles up to 7 mm. long, glandless; leaves obovate or elliptic-obovate, 2.5 to 9 cm. long, 2 to 4.5 cm. wide, shallowly 3-lobed (lobes obtuse, the middle lobe slightly produced, the lateral lobes often obsolete, or truncate at apex), rounded at base, strongly 3-nerved, reticulate-veined, inconspicuously few-ocellate, entire at margin, subcoriaceous, sublustrous above, dull beneath; peduncles solitary or usually in pairs, up to 2 cm. long, articulate just above middle; bracts setaceous, 1.5 to 2 mm. long; flowers red; calyx bowl-shaped, 3 to 7 mm. long, 8 to 9 mm. wide at the 10-sulcate base; sepals spatulate, 1.5 to 2 cm. long, 0.5 to 0.7 cm. wide, obtuse, narrowed to a width of 2 to 3 mm. at base; petals spatulate, 1 to 1.5 cm. long, 2 to 4 mm. wide, obtuse; corona an erect, tubular membrane, the margin entire; operculum membranous, erect, 2 to 3 mm. long, fimbrillate; limen fleshy,

annular, 1 to 1.5 mm. long; ovary subglobose; fruit globose, about 1 cm. in diameter; seeds broadly obovate, 2 to 2.5 mm. long, 1.5 to 2 mm. wide, transversely sulcate with 6 or 7 grooves.

TYPE LOCALITY: Between Navas and Buena Vista, Oriente, Cuba.

DISTRIBUTION: Province of Oriente, Cuba, at an altitude of about 500 meters.

CUBA: Oriente: Navas, *Shafer 4466* (Y, type). Loma de La Zambumbia, *León 12581* (HS, Y). Alto de Las Marías, *León 12753* (Y). Paso Estancia, *Shafer 1744* (F). Baracoa, *Acuña 5168* (HV); *Ekman 4333* (S).

The spatulate sepals and petals at once distinguish this from other species of *Murucuja*. The shape of the leaves suggests *P. cuprea* and forms of *P. cubensis*.

125. **Passiflora Murucuja** L. Sp. Pl. 957. 1753.

Murucuja lunata Medic. Malvenfam. 97. 1787.

Murucuja ocellata Pers. Syn. Pl. 2: 222. 1807.

Plant glabrous throughout; stem angular, deeply grooved, wiry; stipules linear-setaceous, 2 to 4 mm. long, subfalcate, persistent or deciduous; petioles up to 1.5 cm. long, glandless; leaves variable, transversely linear-oblong (1 cm. along midnerve, 4 cm. greatest width) to obdeltoid (2.5 cm. along midnerve, 3.5 cm. between apices of lobes), bilobed (lobes rounded or obtuse, often emarginate, the sinus lunate or truncate, occasionally with short intermediate third lobe), rounded or subtruncate at base, 3-nerved, reticulate-veined, subcoriaceous, lustrous above, dull beneath; peduncles solitary or in pairs, 1 to 2.5 cm. long, articulate just below base of flower; bracts setaceous, 2 to 4 mm. long, borne below middle of peduncle; flowers red, bright purple, or reddish purple; calyx bowl-shaped, 5 to 7 mm. long, 8 to 10 mm. wide at throat, introrsely 10-sulcate at base; sepals linear-oblong, or lance-oblong, 1.5 to 3 cm. long, 3 to 7 mm. wide at base, obtuse; petals linear-oblong, 1 to 2 cm. long, 2.5 to 4 mm. wide, obtuse; corona a cylindric membrane 1 to 1.5 cm. long, subentire or crenulate, reddish or purplish throughout; operculum membranous, borne at throat of tube, dependent from base, 2.5 to 4 mm. long, subentire; limen none; ovary ovoid, glabrous; fruit globose, 1 to 1.5 cm. in diameter; seeds obovate, about 2.5 mm. long, 1.5 to 2 mm. wide, transversely 6–7-sulcate.

TYPE LOCALITY: "Dominica" (Hispaniola).

ILLUSTRATIONS: Amoen. Acad. 1: *pl. 10, f. 10;* Plum. Pl. Amer. *pl. 87;* Bot. Reg. 7: *pl. 574;* G. Don, Hist. Dichl. Pl. 3: 56. *f. 6.*

DISTRIBUTION: Hispaniola; known in Puerto Rico from two collections; between sea level and 1,000 meters altitude.

LOCALITY UNCERTAIN: *Linnean Herbarium* (type). "West Indies," *Jacquin* (Ma).

PUERTO RICO: Quebradillas, *Stevens 1818* (Y). Between Lares and Arecibo, *Cowles* in 1925 (Y).

HAITI (throughout): *Leonard 3008* (N), *3069* (N), *7203* (N), *7319* (N), *7384* (N), *7683* (N), *7690* (N), *8057* (N), *8803* (N), *8857* (N), *8869* (N), *9056* (N), *9772* (N); *Leonard & Leonard 11137* (N), *11518* (K, N), *11573* (N), *12739* (N), *12940* (N), *13910* (N), *14077* (N), *14768* (N), *14949* (N), *15477* (N); *Ekman H344* (B, S), *H673* (B, S), *H910* (B, S), *H2254* (B), *H2254b* (B, N, S), *H6741* (N); *Miller 208* (N); *Eyerdam 325* (N); *Nash 567* (Y), *794* (Y); *Nash & Taylor 1656* (Y); *Picarda 1381* (B); *Christ 2058* (B), *2220* (B); *Buch 172* (B); *Jaeger 221* (B); *Bailey 106* (N).

DOMINICAN REPUBLIC (throughout): *Swartz* (S); *Miller 1025* (N), *1003* (N), *1118* (N); *Bredemeyer* (BW); *Meyerhoff 35* (B); *Rathsack* (Cop); *Raunkiaer 769* (Cop); *Wright & Parry 29* (F, Mo, N); *Rose, Fitch & Russell 3787* (N), *3911* (B, N), *4191* (N); *Abbott 507* (B, N), *1140* (N), *1913* (N), *2205* (N), *2694* (N); *Türckheim 2628* (B), *2679* (B, BM, Brux, G, Gen, N, S, Ut, V, Y), *3190* (B); *Faris 122* (N); *Duchemin 82* (P); *Eggers 1546* (B, Gen), *3378* (B); *Poiteau* in 1802 (B, Gen, P); *Ridley* (Gen); *Richard* (P); *Ritter* (V); *Fuertes 1167* (B), *1167b* (B, Gen, V); *Jacquemont* (N, P); *Schomburgk 92* (B, BM); *Taylor 38* (B, F, Y); *Valeur 134* (N); *Preneloup 227* (B, Gen).

To this, one of the three Linnean species of the general group of murucujas, several plants now recognized as distinct species have been referred. True *P. Murucuja* is known only from Hispaniola and Puerto Rico.

As noted in the description, the foliage of this species is quite variable, but the leaves are always much broader than long, thus differing from the allies with which the species is confused. Other differences are discussed in connection with the various segregates.

LOCAL NAME: "Liane caleçon" (Haiti).

126. **Passiflora Tulae** Urban, Symb. Ant. 1: 374. 1899.

Plant glabrous; stem angular, striate; stipules linear-subulate, 1 to 2 mm. long, early deciduous; petioles 1 to 3 cm. long, glandless;

leaves semi-ovate or semi-elliptic, variable, 1.5 to 7 cm. along midnerve, 5 to 9 cm. along lateral nerves, 5 to 10 cm. at greatest width, shallowly, sometimes deeply, 2–3-lobed (lobes acute or rounded, the middle lobe, if present, usually shorter than the lateral lobes), rounded at base, 3-nerved, reticulate-veined, ocellate, subcoriaceous or membranous, sublustrous above; peduncles solitary or in pairs, 2 to 6 cm. long, articulate above middle; bracts setaceous, 2 to 3 mm. long; flowers rose-colored; calyx bowl-shaped, 4 to 5 mm. long, 6 to 8 mm. wide, 10-sulcate; sepals linear-oblong, 3 to 4 cm. long, 5 to 6 mm. wide, obtuse; petals linear-oblong, 2.5 to 3 cm. long, 3 to 4 mm. wide; corona an erect, cylindrical membrane 1.5 to 2 cm. long, crenulate, yellowish; operculum membranous, borne at throat of tube, dependent from base, 3 to 3.5 mm. long, lacerate, white; limen saucer-shaped, fleshy; ovary subglobose; fruit globose, 1 to 1.5 cm. in diameter; seeds ovate, 3.5 to 4 mm. long, about 2 mm. wide, acutish at either end, transversely 10–12-sulcate.

TYPE LOCALITY: Puerto Rico.

ILLUSTRATION: Engl. & Prantl, Pflanzenfam. ed. 2, 21: 501. *f. 231A–C.*

DISTRIBUTION: Mountains of Puerto Rico.

PUERTO RICO: *Plée 869* (P); *Eggers 1306* (B, type Cop, N); *Britton, Cowell & Brown 5539* (F, N, Y); *Britton & Cowell 937* (N, Y); *Britton, Stevens & Hess 2588* (N, Y); *Sintenis 343* (B), *1171* (B, Bo, F), *2597* (B), *4176* (B, BM, G, Gen, HV, N, P, V), *5278* (G, N, V), *6010* (B, P, S), *6081* (B, HV, J, Minn), *6479* (B).

This is very closely related to *P. Murucuja.* The distinctive characters of *P. Tulae* are: proportionately longer leaves, with shallower lobation; petals nearly equal to sepals, not half so long; longer operculum; presence of a limen; more numerous grooves on the seeds. The second of these characters can not be relied upon too fully, as the numerous specimens of both species examined show much the same variation in the relative length of the petals and sepals. The corona of *P. Tulae* is yellowish; that of *P. Murucuja* reddish or purplish. *Passiflora Tulae* apparently is restricted to Puerto Rico; *P. Murucuja* is common in Hispaniola, but very rare in Puerto Rico.

Subgenus VIII. PSEUDOMURUCUJA

127. **Passiflora perfoliata** L. Sp. Pl. 956. 1753.

Murucuja perfoliata Spreng. Syst. Veg. 3: 43. 1826.

Pericodia perfoliata Raf. Fl. Tellur. 4: 104. 1838.

Decaloba perfoliata M. Roemer, Fam. Nat. Syn. 2: 157. 1846.

Stem angular, striate, glabrous or pilosulous; stipules linear-subulate, 1.5 to 3 mm. long; petioles up to 5 mm. long, glandless, glabrous or puberulous; leaves deeply bilobed (lobes widely divergent, often as much as 90 degrees from the midnerve, oblong or slightly lance-oblong, 2 to 6 cm. along lateral nerve, 1.5 to 2.5 cm. wide, rounded, mucronulate, and often emarginate at apex, a small intermediate lobe sometimes present in the sinus, the midnerve 0.5 to 1.5 cm. long), deeply cordate at base (the basal lobes clasping about stem), 3-nerved, ocellate, subcoriaceous; peduncles solitary or in pairs, 2 to 3 cm. long, sulcate, articulate just above middle; bracts setaceous, 2.5 to 3 mm. long, borne at point of articulation; flowers purple-red; calyx tube obconic toward base, cylindric above, 0.7 to 1.3 cm. long, 0.6 to 0.8 cm. wide at throat, more or less conspicuously 10-ribbed; sepals linear-subulate, 1 to 2 cm. long, 0.2 to 0.3 cm. wide at base; petals oblanceolate, slightly longer than the sepals, 0.5 to 0.7 cm. wide, acute; corona filamentose, the filaments in a single series, linear, 3 to 5 mm. long, 0.5 to 0.7 mm. wide, yellow; operculum membranous, borne at throat of tube, deflexed from base, 4 to 6 mm. long, lacerate at the margin; limen none; ovary ovoid, subangulate, glabrous; fruit globose, up to 1.5 cm. in diameter; seeds ovate or slightly obovate, about 3 mm. long, 1.5 to 2 mm. wide, transversely 5- or 6-sulcate.

TYPE LOCALITY: Jamaica.

ILLUSTRATIONS: Amoen. Acad. 1: *pl. 10, f. 8;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 22, f. 1;* Andr. Bot. Repos. 8: *pl. 547;* Bot. Reg. 1: *pl. 78;* Engl. & Prantl, Pflanzenfam. ed. 2, 21: 501. *f. 231D, E.*

DISTRIBUTION: Jamaica; sea level to about 1,000 meters altitude.

JAMAICA: *P. Browne* (Linn, type); *Bertero* (Gen); *Wullschlägel 841* (B); *Churchill* in 1897 (G); *Linden 1693* (Brux). St. Ann's Bay, *Perkins 585* (B). Devil's Cookroom, *Fawcett 2128* (J). Kingston, *Crawford 631* (Ph); *Lang 560* (Ph), *561* (Ph), *625* (Ph); *Orcutt 4957* (Gen, N); *S. Brown 363* (Ph), *384* (Ph); *Harris 9516* (B, BM, J). Rockfort, *Killip 3* (N, Roch); *Campbell 6291* (B, J). Hope Gardens, *Maxon 2114* (N). Port Royal Mountains, *Norman 190* (BM). Newcastle, *Perkins 191* (B). Malvern, *Harris 9918* (B, J). Santa Cruz Mountains, *Britton 1209* (N, Y); *Perkins 831* (B). Mavis Bank, *Fawcett* (J). Morant, *Oersted 4152* (Cop), *4153* (Cop). Hope River, *Eggers 3469* (B). Arntully, *Orcutt 2644* (N).

This is the first species cited by Harms in proposing his section *Pseudomurucuja*, two other species, *P. oblongata* and *P. cuprea*, being included in it. The flowers of the group are characterized by Harms as having a tubular-campanulate or campanulate calyx, a filamentose corona, at the base of which (i.e., at the apex of the tube) there is a dependent membrane, constituting the operculum, which is rather deeply lacerate. I am adding to the section, which is a subgenus in the present scheme, two additional species, *P. cubensis* and the poorly known *P. tacsonioides*. The subgenus is not so well defined as are *Chloropathanthus*, *Murucuja*, and *Psilanthus*, and perhaps should be subdivided. *Passiflora perfoliata* is distinguished from all other murucujas by the linear-subulate sepals and oblanceolate petals much broader than the sepals, and possibly *Pseudomurucuja* should be treated as a monotypic subgenus containing it alone. However, more study of the material generally referred to *P. oblongata* is necessary, and the identity of *P. tacsonioides* should be definitely established before a reclassification is attempted.

127a. **Passiflora perfoliata** var. **normalis** (L.) Fawc. & Rendle, Fl. Jamaica 5: 242. 1926.

Passiflora normalis L. Syst. ed. 10, 1248. 1759.

Granadilla normalis Gaertn. f. Fruct. & Sem. 2: 479. 1791.

Passiflora cephaleima Bory, Ann. Gén. Sci. Phys. Brux. 2: 152. *pl. 22, f. 11.* 1819.

Cieca normalis M. Roemer, Fam. Nat. Syn. 2: 144. 1846, in part.

Leaf lobes linear or linear-oblong, 2 to 8.5 cm. long, 0.4 to 1 cm. wide, the base of the blade cordate, emarginate, or rounded, the basal lobes not overlapping. Otherwise as in the typical form.

TYPE LOCALITY: Jamaica.

ILLUSTRATIONS: Jacq. Hort. Schönbr. 2: *pl. 182;* Ann. Gén. Sci. Phys. Brux. 2: *pl. 22, f. 11.*

JAMAICA: *Browne* (Linn, type); *Houston* (BM); *Bancroft* (K); cultivated in Hort. Schönbrunn (BM, V); cultivated at Brussels (Brux, type of *P. cephaleima*); *Bertero* in 1821 (Gen, V). Mavis Bank, *Maxon & Killip 1402* (N).

The plant described as *P. normalis* is probably best treated as a variety of *P. perfoliata*, as proposed by Fawcett and Rendle. The name was first applied by Linnaeus to a plant described by Browne, and a barren specimen of Browne's is in the Linnean Herbarium. Later the name was misapplied to the Mexican plant now known

as *P. mexicana*. The only flowering specimens I have seen are those from plants cultivated at the Schönbrunn Gardens, Vienna, and these flowers do not differ from those of typical *P. perfoliata*.

128. **Passiflora cuprea** L. Sp. Pl. 955. 1753.

Passiflora Cavanillesii DC. Prodr. 3: 323. 1828.

Cieca cuprea M. Roemer, Fam. Nat. Syn. 2: 139. 1846.

Cieca Cavanillesii M. Roemer, Fam. Nat. Syn. 2: 140. 1846.

Passiflora cuprea var. *Cavanillesii* Mast. Trans. Linn. Soc. 27: 635. 1871; in Mart. Fl. Bras. 13, pt. 1: 558. 1872.

Plant essentially glabrous; stem angulate, flattened, striate; stipules setaceous, 2 to 3 mm. long, early deciduous; petioles 0.5 to 1 cm. long, glandless; leaves oval or ovate-oblong, 2.5 to 7 cm. long, 1.5 to 5 cm. wide, not lobed, rounded and usually mucronulate at apex, rounded, often slightly emarginate, at base, 3-nerved, ocellate or without ocellae, subcoriaceous or membranous; peduncles solitary or in pairs, up to 2.5 cm. long, enlarged at base of flower, articulate above middle; bracts setaceous, 0.5 to 1 mm. long, soon deciduous; flowers red-brown; calyx bowl-shaped, 4 to 6 mm. long, 4 to 7 mm. wide, usually narrowed to peduncle; sepals linear-oblong, 1.5 to 2 cm. long, 3 to 4 mm. wide, obtuse; petals linear, 1 to 1.5 cm. long, 2 to 3 mm. wide, obtuse; corona filamentose, the filaments in a single series, 3 to 4 mm. long, 0.5 to 1 mm. wide, yellowish; operculum membranous, scarcely 0.5 mm. long, borne at throat of tube, deflexed, entire at margin; limen none; ovary ovoid; fruit globose, about 1 cm. in diameter; seeds obcuneate, about 4 mm. long, 2 mm. wide, transversely 7–8-sulcate.

TYPE LOCALITY: New Providence, Bahamas.

ILLUSTRATIONS: Martyn, Hist. Pl. Rar. *pl. 37;* Amoen. Acad. 1: *pl. 10, f. 3;* Jacq. Icon. Pl. Rar. 3: *pl. 606;* Cav. Diss. 10: *pl. 273* (inaccurate).

DISTRIBUTION: Bahamas, eastern Cuba, and Tortue Island, Haiti; near sea level.

"WEST INDIES": *Jacquin* (Ma).

BAHAMAS (throughout): *Brace 1597* (F), *4195* (F, N, Y), *4687* (F), *4943* (F), *5099* (F), *6705* (F), *6778* (F), *6825* (F), *7037* (F); *Wilson 7177* (F), *7183* (F), *7856* (F), *7887* (F), *7996* (F), *8003* (F), *8091* (F), *8274* (F); *Millspaugh 2273* (F), *2305* (F), *2319* (F), *2359* (F), *9123* (F); *Britton & Millspaugh 5880* (F, Y); *Nash & Taylor*

958 (F, Y); *Northrup 243* (B, Bo, F, G); *E. G. Britton 6480* (Y); *Rothrock 379* (Penn, Ph), *568* (F), *577* (F); *Curtiss 43* (B, BM, Cal, F, Gen, HV, Minn, N, P, Y); *Small & Carter 8449* (B, CM, F, N, P, Ph, Y); *Eggers 3927* (B), *3927a* (B), *4050* (B, BM, Bo, Cop, Gen, N, P); *Wight 129* (B, F, G).

CUBA: Rangel, *Wright 2605* (B, Bo, G, Gen, P).—Matanzas: *Rugel 243* (BM).—Santa Clara: Cararién, *Ekman 18548* (B, HS, S).—Camagüey: Cayo Guajaba, *Shafer 685* (F, Y). Cayo Sabinal, *Ekman 15509* (B, S).—Oriente: Baracoa, *Ekman 3479* (S), *4167* (BM, N, S); *Pollard, Palmer & Palmer 93* (CM, F, G, Minn, Mo, N, Ph); *Acuña 5166* (HV). Santiago, *Ekman 7729* (S), *9190* (S). Cape Maisi, *Bailey 15148* (N).

HAITI: Ile de Tortue, *Ekman H4124* (N).

This is at once distinguished from other species of *Pseudomurucuja* by its entire leaves. Like all other murucujas the plant is essentially glabrous, and Cavanilles' description of the stem as "subvillous" and of the leaves as "ciliata, cilia tuberculis terminata," which gave rise to the name *Cavanillesii*, is difficult to understand. Except for the cilia, his illustration well depicts typical *P. cuprea*. The only specimen seen by Cavanilles was one collected by Jacquin. There is in the Cavanilles Herbarium one of Jacquin's from the West Indies, and this is true *P. cuprea*. Perhaps there was mixed with it part of *P. pectinata* or *P. bahamensis*, both of which have ciliated leaves.

LOCAL NAME: "Saibey de costa" (Cuba).

129. **Passiflora oblongata** Swartz, Prodr. Veg. Ind. Occ. 97. 1788.

Passiflora lyraefolia Tussac, Fl. Antill. 1: 70. *pl. 4*. 1808.

Passiflora elongata Poir. in Lam. Encycl. Suppl. 2: 839. 1811.

Passiflora oblonga DC. Prodr. 3: 326. 1828.

Decaloba oblongata M. Roemer, Fam. Nat. Syn. 2: 155. 1846.

Decaloba lyraefolia M. Roemer, Fam. Nat. Syn. 2: 157. 1846.

Passiflora oblongata var. *lyrifolia* Griseb. Fl. Brit. W. I. 295. 1864.

Plant glabrous, or the younger parts finely puberulent; stem angular, striate; stipules linear-subulate, 4 to 7 mm. long, persistent or deciduous; petioles 1.5 to 4 cm. long (those of the floral leaves shorter), glandless, often purplish; leaves variable, generally oblong, occasionally cuneate-obovate, usually the greatest length at least twice the greatest width, 2–3-lobed (lobation usually one-fifth to

one-half length of blade, the intermediate lobe, if present, less than half as long as the lateral lobes, rarely subtruncate at apex and the intermediate lobe exceeding the lateral lobes; lobes long-acuminate, acute, or rounded, mucronulate), rounded or acute at base, strongly 3-nerved, reticulate-veined, ocellate, coriaceous or subcoriaceous, lustrous above; peduncles solitary or usually in pairs, about 1 cm. long (1.5 cm. in fruit), more or less enlarged and becoming distinctly striate toward apex, borne on elongate, leafless (or with much reduced leaves) branches, the inflorescence thus appearing racemose; bracts setaceous, about 2 mm. long; flowers crimson, scarlet, or rose-colored; calyx cylindric or tubular-campanulate, 1 to 2 cm. long, 6 to 8 mm. at greatest diameter, abruptly or gradually narrowed to the peduncle or scarcely narrowed and even enlarged at the base; sepals linear-oblong, 1.5 to 3 cm. long, 0.4 to 0.5 cm. wide, obtuse; petals linear, about one-quarter as long as the sepals, obtuse; corona filamentose, the filaments borne at throat of calyx tube, subulate, 1 to 1.5 mm. long, a second row of minute filaments (0.8 to 1 mm. long) sometimes borne about 2 mm. below the preceding (at base of operculum); operculum membranous, slightly plicate, 3 to 5 mm. long, magenta, strongly incurved from base, the margin lacerate; limen none; gynophore slender, magenta; ovary obovate, strongly 6-angled (appearing nearly terete in herbarium specimens); stigmas reniform; fruit globose, about 1 cm. in diameter; seeds orbicular-ovate, 3 to 3.5 mm. long, nearly as wide, transversely 6–8-sulcate.

TYPE LOCALITY: Jamaica.

ILLUSTRATION: Tussac, Fl. Antill. 1: *pl. 4.*

DISTRIBUTION: Throughout Jamaica, ascending to 900 meters altitude.

JAMAICA: *Swartz* (S, type); *Tussac* in 1807 (P, type of *P. lyrifolia*); *Bertero* in 1821 (B, V); *W. Wright* (BM). Mandeville, *Crawford 690* (CM, Ph), *788* (CM, Ph, Y). Troy, *Perkins 1397* (B, G). Mt. Diabolo, *Maxon & Killip 418* (N). Catadupa, *Maxon & Killip 1557* (G, N, Y). Cuna Cuna Pass, *Maxon 1700* (N). Priestman's River, *Maxon 2508* (N). St. Thomas Parish, *Maxon 9099* (B, BM, F, G, K, N, Y), *9132* (N), *9220* (N), *9253a* (N), *9503* (N). St. George's, *Harris 5758* (B, BM, F, J). Dolphin Head, *Britton & Hollick 2226* (Y). Bath, *Boughton 35* (Roch); *Norman 221* (BM). John Crow Mountains, *Britton 3964* (Y), *4134* (N, Y). Portland, *Fawcett* (J). Lacovia, *Tomlinson* (J).

There are three sheets labeled *Passiflora oblongata* in the Swartz Herbarium. Two are clearly the Jamaican plant commonly referred

to this species. The third sheet, labeled "Guyana," consists of a mixture of the foliage of *P. vespertilio* and a flower of *P. glandulosa.*

The shape of the calyx differs in these specimens. In many of them it is cylindric, of nearly uniform diameter, except at the base, where it is much enlarged. In *Maxon & Killip 418* it is narrowed to the peduncle. Further study of all available material is necessary, in order to determine whether more than one species is represented.

LOCAL NAMES: "Red wiss," "puss-gut."

130. **Passiflora tacsonioides** Griseb. Fl. Brit. W. I. 295. 1860.

Plant glabrous throughout; stem subquadrangular; stipules linear-setaceous, 3 to 4 mm. long, falcate; petioles about 1 cm. long, glandless; leaves transversely oblong in general outline, 2 to 6 cm. long, 4 to 8 cm. wide, 2–3-lobed at apex or at least not more than a third their length (lobes rounded, apiculate), rounded at base, ocellate beneath, coriaceous, lustrous above; peduncles "axillary, simple, 2–1, twice as long as the petiole, jointed above the middle"; bracts "setaceous"; flowers 3 cm. long; calyx "red, the tube campanulate, thrice shorter than the oblong-linear lobes"; petals "linear"; corona "short, filamentose, distant from the lacerate appendages of the disc."

TYPE LOCALITY: Jamaica.

DISTRIBUTION: Jamaica.

JAMAICA: *Wullschlägel 842* (B, fragment of type). Montego Bay, *Maxon & Killip 1675a* (N). Fern Gully, *Maxon 10376* (N). Hermitage Dam, *Maxon 8769* (N), *8770* (N), *8772* (N). House Hill, St. Thomas, *Maxon 9055* (N). Trafalgar River, *Maxon & Killip 806* (N), *808* (N). Bath, *Boughton 31* (N). John Crow Mountains, *Maxon & Killip 254* (N).

This may be merely a form of *P. oblongata.* Of the 11 specimens here cited the fragmentary type material at Berlin alone has flowers. I made no dissection of these, which are much larger than in *P. oblongata,* and the floral characters stated above are derived from Grisebach's description. The leaves of the type are transversely oblong, suggestive of forms of *P. Murucuja.* The leaves of the sterile specimens examined vary from transversely oblong to rather deeply bilobed, similar to forms of *P. biflora;* but in all cases the leaves, which appear to be fully developed, are decidedly broader than long, thus serving to distinguish the plant at once from typical *P. oblongata.*

131. **Passiflora cubensis** Urban, Symb. Ant. 3: 326. 1902.

Passiflora coriacea A. Rich. in Sagra, Hist. Cuba 10: 288. 1845. Not *P. coriacea* Juss.

Plant essentially glabrous; stem 3–4-angular, striate; stipules linear-subulate, 2 to 3 mm. long, persistent; petioles 4 to 10 mm. long, glandless, purplish; leaves obdeltoid or semi-ovate in general outline, normally bilobed about one-third the length of the blade (1.5 to 4 cm. along midnerve, 3 to 5 cm. along lateral nerves, 2.5 to 5 cm. at greatest width; lobes rounded or truncate at apex, often emarginate, rarely acute, the sinus usually rounded; extreme forms lobed to below middle, the lobes suberect, or nearly truncate at upper margin and merely emarginate at the tips of the principal nerves), cuneate or rounded at base, 3-nerved, ocellate, coriaceous or subcoriaceous, lustrous above; peduncles solitary or in pairs, 1.5 to 2 cm. long, articulate above middle; bracts setaceous, 2 to 3 mm. long, borne at or below point of articulation; flowers red; calyx bowl-shaped, 4 to 6 mm. long, 5 to 10 mm. wide, introrse at base, not sulcate; sepals linear-oblong, 1.5 to 2.5 cm. long, 4 to 6 mm. wide, obtuse; petals linear-oblong, 1 to 2 cm. long, 2.5 to 3 mm. wide, obtuse; corona filamentose, the filaments in a single series, narrowly linear, 4 to 6 mm. long, subulate at tips, yellowish; operculum membranous, erect or very slightly incurved, 1.5 to 2 mm. long, denticulate; limen apparently none; ovary ovoid or subglobose, faintly longitudinally ribbed; fruit globose, up to 2 cm. in diameter; seeds narrowly obovate, about 3 mm. long, 1 to 1.5 mm. wide, transversely 6–7-sulcate.

TYPE LOCALITY: Calicita, Santa Clara, Cuba.

DISTRIBUTION: Central and eastern Cuba, up to 700 meters altitude.

CUBA: *De la Sagra* (P, type of *P. coriacea* Rich.). Sierra Maestra, *León 10557* (Y); *Clément 563* (HS).—Habana: Habana, *Otto 191* (B).—Matanzas: San Miguel de los Baños, *Killip 13855* (N); *León & Roca 8866* (HS, N, Y).—Santa Clara: Calicita, *Combs 318* (B, type, F, G, Y). Santa Clara, *Britton & Cowell 10193* (Y); *L. B. Smith et al. 3145* (N). Cienfuegos Bay, *Britton & Wilson 5714* (Y); *Jack 7712* (N). Sancti Spiritus, *Luna 955* (HS). Motembo, *León 9335* (HS). Zapata, *Ekman 18352* (B, S). Mordoza, *Bailey 15223* (N).—Camagüey: *Roig 6066* (HV). La Gloria, *Shafer 361* (Y). Pueblo Romano, *Shafer 2451* (F, N, Y). Camagüey, *Ekman 15365* (B, BM, S); *Shafer 871* (Y), *13107* (B, Y).—Oriente: *Wright 198a* (B, Brux, G,

Gen, HA). La Madelina, *Wright 1615* (Bo, G, Gen, HA, P, S). Holguín, *Ekman 3256* (N, S), *15729* (B, Gen, S). Nipe, *Ekman 3428* (S), *9948* (S). Antilla, *Britton, Britton & Cowell 12505* (N, Y); *Shafer 3772* (N, Y).

This plant has been confused with the Jamaican *P. oblongata* by Masters and others. As Urban points out, the shorter calyx tube, the erect (not dependent) operculum, much shorter petioles, and the fact that the flowers are not in a raceme-like inflorescence readily separate *P. cubensis* from its near relative.

In *Wright 198a* and *Shafer 871* the leaves are scarcely lobed; the flowers, however, appear to be identical with those of typical *P. cubensis*. In *Shafer 3772* the leaves are deeply bilobate, resembling forms of *P. ornithoura*.

Subgenus IX. PSILANTHUS

132. **Passiflora bicuspidata** (Karst.) Mast. Trans. Linn. Soc. 27: 635. 1871; in Mart. Fl. Bras. 13, pt. 1: 558. 1872.

Tacsonia cuneata Benth. Pl. Hartw. 183. 1845. Not *P. cuneata* Willd.

Distephana cuneata M. Roemer, Fam. Nat. Syn. 2: 200. 1846.

Tacsonia bicuspidata Karst. Linnaea 30: 160. 1859–60.

Stem angular, longitudinally sulcate, glabrous or minutely pilosulous; stipules setaceous, 2 to 3 mm. long; petioles up to 1.5 cm. long, slender, glandless; leaves cuneate-oblong, 4 to 8 cm. long, 1 to 2.5 cm. wide, 2-lobed at apex (lobes deltoid, less than 1 cm. long, acute, erect), prominently 3-nerved, closely reticulate-veined, ocellate, subcoriaceous, glabrous; peduncles solitary or in pairs, up to 2 cm. long, slender, articulate near apex; bracts setaceous, 3 to 4 mm. long, borne on upper half of peduncle; flowers red-brown or rose-purple; calyx cylindric, 2.5 to 4 cm. long, 2.5 to 6 mm. wide, dilated at base, up to 1 cm. wide, glabrous; sepals oblong-lanceolate, 1.5 to 2 cm. long, 5 mm. wide, obtuse; petals linear, 0.8 to 1 cm. long, 3 to 4 mm. wide; corona filaments filiform, 3 to 4 mm. long, very slender, in a single series at throat of tube, pale; operculum membranous, 4 to 5 mm. long, borne at base of tube, erect, fimbrillate at margin; limen none; ovary ovoid, glabrous; fruit subglobose.

TYPE LOCALITY: Bogotá, Colombia.

ILLUSTRATION: Engl. & Prantl, Pflanzenfam. ed. 2, 21: 501. *f. 231F, G.*

DISTRIBUTION: Eastern Cordillera of Colombia, between 2,300 and 3,300 meters altitude.

COLOMBIA: Norte de Santander: Páramo de Las Cruces, *Funck & Schlim 1382* (Bo, Gen, P).—Cundinamarca: Bogotá, *Karsten* (V, type); *Lindig 554* (BM); *Goudot* (P). Fusagasugá, *Lehmann 2498* (Bo, K); *Triana 2959* (BM, Gen, K). Choachí, *Lindig 636* (P). Sibaté, *Popenoe 1114* (N); *Pennell 2408* (G, N, Y); *Lehmann 7429* (B, K, N); *Dawe* in 1919 (K). Zipaquirá, *Pennell 2562A* (Y).

Passiflora bicuspidata, *P. hyacinthiflora*, and *P. trinervia* constitute a well marked group of *Passiflora*, apparently confined to the Central and Eastern Cordillera of Colombia, and connecting *Murucuja* and its allies to *Tacsonia* and its allies.

133. **Passiflora hyacinthiflora** Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 179. 1873.

Passiflora hyacinthiflora var. *bilobata* Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 180. 1873.

Passiflora hyacinthiflora var. *tridentata* Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 180. 1873.

Stem flattened, striate, finely pilosulous; stipules setaceous, about 3 mm. long; petioles up to 8 mm. long, glandless; leaves oblong or elliptic, 5 to 7 cm. long, 1 to 2 cm. wide, shallowly 2–3-lobed (lobes deltoid, acute), subcuneate or rounded at base, 3-nerved (nerves nearly parallel), coarsely reticulate, ocellate, lustrous and glabrous above, appressed-pubescent on nerves beneath; peduncles solitary or in pairs, up to 3 cm. long, articulate above middle; bracts setaceous, about 3 mm. long, borne on upper half of peduncle; flowers purple(?); calyx cylindric, 3 to 4 (or up to 7?) cm. long, 0.5 to 0.7 cm. wide, slightly dilated below, rounded at base or tapering to peduncle, densely pilosulous without; sepals linear-subspatulate, 2 to 2.5 cm. long, about 1 cm. wide, obtuse; petals about one-third as long as the sepals; corona filamentose, the filaments few (about 16 to 20), in a single series; operculum borne a short distance above base of tube, fimbriate above, the threads strongly flexuous; ovary hirsute-tomentose.

TYPE LOCALITY: Páramo de Las Cruces, Department of Norte de Santander, Colombia.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: *pl. 42*.

DISTRIBUTION: Eastern Cordillera of Colombia, between 2,900 and 3,300 meters altitude.

COLOMBIA: Norte de Santander: Páramo de Las Cruces, *Funck & Schlim 1383* (Gen, type collection). Between Pamplona and Toledo, *Killip & Smith 19849* (G, N).—Santander: Las Vegas, *Killip & Smith 15935* (N). Slopes of Páramo Rico, *Killip & Smith 17753* (N). Slope of Páramo de Las Puentes, *Killip & Smith 18158* (G, N, Y).

This closely resembles the preceding, and the few points of difference between the two perhaps are not of sufficient importance to justify the separation. The authors of the species stress the fact that the calyx of *P. hyacinthiflora* is attenuate at the base, whereas in *P. bicuspidata* it is rounded. The specimen of the type collection at Geneva, evidently not seen by Planchon, has flowers with both attenuate and rounded bases. Other differences noted are the more deeply fringed operculum of *P. hyacinthiflora*, the pilosulous calyx tube, hirsute-tomentose ovary, and a slightly different venation of the leaves.

134. **Passiflora trinervia** (Juss.) Poir. in Lam. Encyl. Suppl. 2: 843. 1811.

Tacsonia trinervia Juss. Ann. Mus. Hist. Nat. 6: 390. *pl. 58.* 1805.

Stem stout, angulate, densely grayish-tomentose; stipules setaceous, up to 1 cm. long; petioles up to 1.5 cm. long, glandless; leaves oblong, 6 to 10 cm. long, 3.5 to 5 cm. wide, 3-lobed at apex (middle lobe deltoid, acute, much the largest, the lateral lobes obtuse or acutish, often nearly obsolete), rounded or subcordate at base, 3-nerved, reticulate-veined, glabrescent or pilosulous above, densely ferruginous-tomentose beneath; peduncles slender, up to 10 cm. long, pendulous; bracts setaceous, 1 cm. long, borne slightly below middle of peduncle; calyx cylindric, up to 12 cm. long, 1 cm. wide (at throat), dilated just above base, abruptly narrowed to peduncle, rose-colored without, yellow-green proximally, cream-colored distally within, glabrous; sepals oblong-lanceolate, 3 cm. long, 6 mm. wide, rose-colored, marginally banded with white within; petals linear-oblong, 1.5 cm. long, 3 mm. wide, deep rose; corona filamentose, the filaments 35 to 40, 2 to 3 mm. long, cream-colored; operculum borne about 3 cm. above base of tube, reduced to about 12 weak, pink threads 4 mm. long; limen none; anthers purplish black, green at center; ovary narrowly ovoid, densely ferruginous-hirsute; fruit ovoid, 3.5 to 4 cm. long, 2 cm. in diameter, densely ferruginous-hirsute; seeds obovate or obcordate, 4 to 6 mm. long, 2.5 to 3 mm. wide, transversely sulcate with 8 or 9 rugulose ridges.

TYPE LOCALITY: "Sur les bords du fleuve Cassiquiare."

ILLUSTRATION: Ann. Mus. Hist. Nat. 6: *pl. 58.*

DISTRIBUTION: Central part of Central Cordillera of Colombia, about 3,000 meters altitude; very doubtfully in southern Venezuela.

COLOMBIA: *Humboldt & Bonpland* (B, P, type); *Purdie* (G, K, P).—Tolima (Quindío Trail): *Jervise* (K); *Karsten* (V). La Ceja, *Killip & Hazen 9512* (N); *Goudot* (Bo, P). Agua Bonita, *Killip & Hazen 9524* (G, N, Ph, Y), *9542* (N). Gallegas, *Triana 2952* (BM, Brux, N, Gen, HNC, P, Y); *Linden 1127* (BM, Bo, Gen, P, V). Las Cruces, *André 2280* (K, Y).—Caldas: Lagunetas, Quindío Trail, *Killip & Hazen 9097* (G, N, Ph, Y), *9411* (N), *9477* (G, N, Ph, Y); *Holton 707* (Bo, Gen, K, Y). Cucarronera, New Quindío Trail, *Hazen 9692* (G, N, Y).

Both Jussieu and Kunth (in HBK. Nov. Gen. & Sp. 2: 142) give the Cassiquiare River in Venezuela as the locality for the Humboldt and Bonpland type specimen. This species is fairly common at high elevations along the Quindío Trail, where its dependent, rose-colored flowers are a striking feature of the vegetation, and it could scarcely have been overlooked by Humboldt and Bonpland in following this historic trail. I believe that there must be a confusion in locality data, and that the type came from the Quindío; it is very unlikely that this plant of the mountains grows "along the banks of the Cassiquiare River" in southern Venezuela.

The data on the size and coloring of the floral parts were obtained from a living plant (*Killip & Hazen 9411*).

135. **Passiflora sanguinolenta** Mast. Gard. Chron. 1868: 1162. 1868.

Passiflora Mastersiana Harms, Bot. Jahrb. 18: Beibl. 46: 8. 1894.

Plant densely villous-hirsute throughout; stem angulate; stipules setaceous, 3 to 5 mm. long; petioles up to 1.5 cm. long, glandless; leaves lunate-bilobed (sinus rounded or truncate; lobes lanceolate or ovate-lanceolate, 1 to 2 cm. wide at base, mucronulate), cordate, membranous; peduncles slender, up to 5 cm. long, articulate above middle; bracts none or soon deciduous; flowers dull red or reddish violet; calyx tube cylindric, 1 to 2 cm. long, conspicuously nerved; sepals linear-oblong, 1.5 to 2 cm. long, 4 to 5 mm. wide; petals linear, 0.8 to 1 cm. long, 2 to 3 mm. wide; corona in 2 series, one borne at the throat of the calyx, the filaments subulate, 4 to 5 mm. long, distally white, proximally red or violet, the other borne close to the operculum, consisting of a few, very slender, white(?) filaments

about 2 mm. long; operculum membranous, erect, irregularly incised; limen fleshy, about 1.5 mm. high, closely surrounding gynophore, crenulate at margin; ovary ovoid, densely pilose-hirsute; the fruit not known.

TYPE LOCALITY: "Colombia," perhaps Ecuador (type collected by Wallis).

ILLUSTRATIONS: Mart. Fl. Bras. 13, pt. 1: *pl. 128, f. 3;* Gard. Chron. 2: 227. *f. 47.* 1874; Journ. Hort. Soc. London n. ser. 4: *pl. 8;* Engl. & Prantl, Pflanzenfam. 3, 6a: 72. *f. 25C;* ed. 2, 21: 477. *f. 218C.*

DISTRIBUTION: Mountains of Ecuador, between 2,000 and 2,600 meters altitude.

ECUADOR: *Lobb 151* (K). Chuquiribamba, *André 4446* (Y).—Loja: Las Juntas, *Lehmann 4836* (B, type of *P. Mastersiana,* G, K, N, S); *Rose 23233* (G, N, Y). Loja, *Rose 23900* (N); *Hitchcock 21470* (N), *21494* (G, N).

This is an anomalous species, very doubtfully referable to *Psilanthus.* The shape of the leaves, the indument, and the absence of bracts suggest an affinity with *P. rubra,* but the tubular calyx and the nonplicate operculum indicate that it does not belong to *Plectostemma.* Its fruit is unknown, and the ovules in the material at hand are not sufficiently developed to show the sculpturing. Were the mature seeds known to be transversely sulcate with smooth ridges, its relationship with *P. rubra* would be even more apparent.

Subgenus X. ADENOSEPALA

136. **Passiflora Ernesti** Harms, Repert. Sp. Nov. 19: 59. 1923.

A woody vine, glabrous throughout; stem terete, striate; stipules linear-subulate, 4 to 5 mm. long, soon deciduous; petioles about 1 cm. long, biglandular near base, the glands sessile; leaves ovate or oblong, 5 to 12 cm. long, 2 to 5 cm. wide, acute or acuminate, mucronulate at apex, rounded or subacute at base, entire, 1-nerved, reticulate-veined, coriaceous, lustrous above, dull beneath; peduncles solitary or in pairs, 1 to 4 cm. long, slender; bracts narrowly lance-linear, about 8 mm. long, 1 mm. wide, biglandular on each side near base; flowers red; calyx tube urceolate-campanulate, 3 to 5 mm. long, 10 to 12 mm. wide at throat; sepals linear, 2 to 2.5 cm. long, 4 to 5 mm. wide, dorsally short-corniculate just below apex, usually glandular on outside near margin, the glands oblong, 2 mm. long, sessile; petals narrowly linear, 1 to 1.5 cm. long, 3 to 4 mm. wide, obtuse, glandless; corona a thick, fleshy ring 3 to 4 mm. high, erect, cleft at margin into

triangular-dentiform processes about 2 mm. long, and bearing within a row of narrowly linear filaments 2 to 3 mm. long; operculum borne at middle of tube, membranous, suberect, plicate at base, denticulate or subentire; limen annular; gynophore slender; ovary ovoid, tapering above middle.

TYPE LOCALITY: Rio Negro, Manáos, State of Amazonas, Brazil.

DISTRIBUTION: Middle and upper Amazon Basin, Brazil.

BRAZIL: Amazonas: *Neumann* (BM, N). Manáos, *Ule* in 1910 (B, type); *Ducke 23558* (Bo, K, N, S, Ut); *Labroy 162* (P).—Pará: Rio Tapajoz, *Ducke 648* (Bo, K, N, S, Ut).

In describing this species Harms commented on the difficulty of placing it in either *Granadilla* or *Plectostemma*. The corona is a thick ring, cleft into dentiform processes at the margin, within which is a row of narrower filaments, the corona thus being quite unlike that of any other known species of *Passiflora*. Evidently the species represents a monotypic subgenus. The vegetative parts are very similar to those of *P. glandulosa* and *P. variolata*.

Subgenus XI. TACSONIOPSIS

137. **Passiflora bracteosa** Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 137. 1873.

Tacsonia infundibularis Mast. Journ. Bot. Brit. & For. 21: 34. 1883.

Plant glabrous throughout; stem angular; stipules foliaceous, 1 to 1.5 cm. long, 0.7 to 1 cm. wide, cuspidate, oblique at base, irregularly glandular-serrate; petioles 2.5 to 4 cm. long, bearing 4 to 6 small glands; leaves 5 to 10 cm. long, up to 15 cm. wide between tips of lateral lobes, deeply 3-lobed (lobes ovate-oblong or oblong-lanceolate, 2 to 3.5 cm. wide, acuminate, the middle lobe the longest), rounded or cordulate at base, sharply serrate, 5-nerved; peduncles stout, up to 15 cm. long; bracts distinct to base, oblong-lanceolate, 4 to 5 cm. long, 2 to 2.5 cm. wide, evenly erose-denticulate or serrate, membranous, light green, borne slightly below base of flower; calyx tube orange-pink, greenish distally without, white within, cylindric-funnel-shaped, 7 to 9 cm. long, slightly inflated at base, broadly campanulate above throat, 5-lobed, the lobes extending halfway down to throat, greenish without, white within; petals 5, ovate-oblong, about 1.5 cm. long, 1 cm. wide, inserted between the lobes of the calyx (hence *above* throat); corona deep pink, consisting of 2 rings, each sinuate-dentate or tuberculate (teeth or tubercles

about 10, those of the inner ring less prominent); operculum membranous, about 7 mm. long, deflexed, the margin lobulate; gynophore slender, white; fruit globose-ovoid, about 7 cm. long, 11 cm. at greatest circumference, bright orange, green proximally, densely covered with long (about 5 mm.) tubercles.

TYPE LOCALITY: La Baja, Department of Santander, Colombia.

DISTRIBUTION: Department of Santander, in the Eastern Cordillera of Colombia, between 2,500 and 3,000 meters altitude.

COLOMBIA: Santander: La Baja, *Funck & Schlim 1381* (BM, type of *Tacsonia infundibularis*, Bo, Brux, Gen, P, type); *Killip & Smith 18320* (A, G, N, Y). Las Vegas, *Killip & Smith 15926* (A, G, N, V, Y). California, *Killip & Smith 16889* (A, G, N, Y).

This species may well be sufficiently distinct from *Passiflora* to constitute a separate genus. The sepals are free only halfway to the throat of the calyx tube, the petals being inserted at the base of the free sepals. The fruit is densely covered with tubercle-like protuberances, and is thus quite unlike that of any other known species of *Passiflora*. Triana and Planchon created for this species the subgenus *Tacsoniopsis*.

The plant appears to be rare and local, confined to the Bucaramanga region in the Eastern Cordillera of Colombia.

Tacsonia infundibularis Mast. was based on *Funck & Schlim 1381*, also the type of *P. bracteosa*. The flowers of the specimen examined by Masters were not in prime condition, and he evidently did not appreciate their peculiar structure.

Subgenus XII. RATHEA

138. **Passiflora andina** Killip, nom. nov. Figure 1, *b*.

Rathea floribunda Karst. Fl. Columb. 1: 77. *pl. 38*. 1859.

Tacsonia floribunda Mast. Trans. Linn. Soc. 27: 628. 1871; in Mart. Fl. Bras. 13, pt. 1: 538. 1872.

Tacsonia floribunda var. *major* Mast. Journ. Linn. Soc. 20: 26. 1883.

Tacsonia Andreana Sodiro, Anal. Univ. Quito 18: 334. 1903. Not *P. Andreana* Mast. (1883).

Passiflora floribunda Tr. & Planch. ex Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 506. 1925. Not *P. floribunda* Lemaire (1848).

Plant glabrous throughout (except flowers); stem subquinquangular; stipules linear-lanceolate, 8 to 10 mm. long, about 2 mm. wide, glandular-serrulate, deciduous; petioles up to 5 cm. long, minutely 2–6-glandular; leaves 3–5-lobed to within 2 cm. of base (lobes narrowly lanceolate, 5 to 10 cm. long, 1 to 1.5 cm. wide, acute, serrulate above middle), 5 to 10 cm. wide between apices of lateral lobes, rounded or subcuneate at base, subcoriaceous; peduncles up to 10 cm. long, terete; bracts oblong-lanceolate, up to 4 cm. long, 2 cm. wide, acute, free to base, serrulate; calyx tube cylindric or cylindric-funnel-shaped, 5 to 10 cm. long, 1.3 to 3 cm. wide at throat, 5-ribbed, finely puberulent without, greenish yellow (or orange or red proximally, yellow distally); sepals oblong, one-third to one-fourth as long as tube, obtuse, aristulate on outside just below apex; petals oblong or obovate-oblong, 3 to 6 cm. long, 0.8 to 1.2 cm. wide, obtuse, inserted at or slightly above middle of tube; corona none; operculum borne near base of tube, deflexed, denticulate; ovary elliptic, densely short-villous-tomentose, long-stipitate above the stamens; fruit ellipsoidal, 6 to 7 cm. long, 3 to 4 cm. in diameter, the pericarp brittle, somewhat puberulent; seeds narrowly elliptic, about 6 mm. long, 3 mm. wide, slightly compressed, smooth at margin, obscurely transversely 2–3-sulcate at center of each face.

TYPE LOCALITY: "In fruticetis altae planitiei Andium Pastoensium et Quitensium prope Guayan in valle Lloensi altitud. 2,700 metr."

ILLUSTRATIONS: Karst. Fl. Columb. 1: *pl. 38;* Rev. Chil. Hist. Nat. 11: *pl. 9;* Journ. Linn. Soc. Bot. 20: *pl. 19.*

DISTRIBUTION: Mountains of northern Ecuador, and perhaps in southwestern Colombia.

ECUADOR or COLOMBIA: "Pasto, Quito, 2,800 m.," *Karsten* (V, type of *Rathea floribunda*).

ECUADOR: Guayas: *Jameson 593* (BM, P).—Pichincha: Mt. Corazón, 2,500 meters, *André 3679* (K, type of *Tacsonia floribunda* var. *major*, Y); *Sodiro* in 1908 (*Mille 229;* N). Tandacoto, *Heilborn 497* (B, S).

This remarkable species, with the petals inserted *below* the throat of the calyx tube, is perhaps sufficiently distinct to justify the maintenance of Karsten's genus *Rathea.* Other details of the flower structure, however, seem characteristic of the tacsonias, and in view of the broad concept of *Passiflora* in the present work, it seems preferable to treat this as a subgenus.

In transferring this species to *Passiflora* it is necessary to adopt a new name, as the names *Passiflora floribunda* and *P. Andreana* are invalidated by earlier use.

The plant described as a variety (var. *major*) by Masters and later as *Tacsonia Andreana* by Sodiro apparently differs from Karsten's description of *Rathea floribunda* only in having larger flowers with the tube more strongly dilated at the throat. The illustration accompanying Sodiro's description is very similar to that given by Karsten, the principal difference being the angular calyx tube.

Karsten's statement of the type locality is uncertain, nor is the information on the type sheet of much assistance. There is no positive evidence of the occurrence of this species outside of Ecuador; the Purdie collection from Colombia cited as this by Masters belongs to another species.

Subgenus XIII. TACSONIA

139. **Passiflora Parritae** (Mast.) Bailey, Rhodora 18: 156. 1916.

Tacsonia Parritae Mast. Gard. Chron. n. ser. 17: 218, 225. *f. 34.* 1882.

Passiflora salmonea Harms, Bot. Jahrb. 18: Beibl. 46: 11. 1894.

Stem angulate, glabrous or slightly tomentulous at the nodes, dark reddish brown; stipules setaceous, 5 to 6 mm. long, remotely glandular-serrulate; petioles up to 2 cm. long, bearing 2 to 4 inconspicuous, sessile glands; leaves 5 to 7 cm. long, 5 to 7 cm. between tips of lateral lobes, 3-lobed about four-fifths their length (lobes lanceolate, 1 to 1.5 cm. wide, acuminate, apiculate), subcuneate at base, remotely denticulate, membranous, glabrous above, pilosulous beneath; peduncles 12 to 14 cm. long; bracts ovate, about 7 mm. long, 3 mm. wide (probably larger when developed), acute, apiculate, glandular-serrulate, free to base, early deciduous; flowers orange or salmon; calyx tube cylindric, 8 to 9 cm. long, ventricose and slightly sulcate at base, glabrous; sepals oblong, 6 to 7 cm. long, 2.5 to 3 cm. wide, obtuse, keeled, the keel broadly winged, about 1 cm. wide, terminating in an awn 7 to 8 mm. long; petals oblong, slightly shorter than the sepals, obtuse; corona minutely tuberculate; operculum deflexed, recurved at margin; ovary ellipsoidal, sericeous.

TYPE LOCALITY: Department of Tolima, Colombia (type collected by Parra [Parrita]).

ILLUSTRATIONS: Gard. Chron. n. ser. 17: 225. *f. 34.* 1882; Ill. Hort. 35: *pl. 41;* Mutis, Icon. Pl. Ined. 26: *pl. 38.*

DISTRIBUTION: Central Cordillera of Colombia, between 2,000 and 2,600 meters altitude.

COLOMBIA: Tolima: *Carder* (K). Líbano, *Pennell 3196* (G, N, Y). —Antioquia: Pensilvania, Río Dulce, *Lehmann 7282* (B, type of *P. salmonea*, K). Páramo de Ruiz, *Lehmann 6094* (K).

The broad keel of the sepals at once distinguishes this from all other known species of *Passiflora*. The flowers are of a more decided orange, or salmon, color than in other tacsonias. Harms places this species in a subsection (*Parritanae*) of his section *Tacsonia*.

140. **Passiflora cremastantha** Harms, Repert. Sp. Nov. 18: 294. 1922.

Plant hirsute-tomentose; stem terete, or the younger parts subangular; stipules linear, up to 1 cm. long; petioles up to 4 cm. long, bearing several minute glands imbedded in the dense indument; leaves ovate or ovate-oblong, 9 to 16 cm. long, 5 to 11 cm. wide, acute at apex, subcordate or rounded at base, serrate-dentate, pilosulous on the nerves and veins above, densely ferruginous-hirsute-tomentose beneath; peduncles 10 to 30 cm. long, very slender; bracts free to base, ovate, 2.5 to 3 cm. long, 1 to 1.2 cm. wide, entire, acute; calyx tube cylindric, 4 to 6.5 cm. long, densely pilosulous without; sepals oblong, 4 to 4.5 cm. long, 1 to 1.2 cm. wide, aristulate; petals similar and subequal to sepals; corona 1-ranked, tuberculate, the tubercles about 0.5 mm. long; operculum dependent, recurved at margin; ovary hirsute-tomentose.

TYPE LOCALITY: Alto de Pasares, between Popayán and Coconuco, Colombia.

DISTRIBUTION: Known only from type locality, in the southern part of the Central Cordillera of Colombia, at 2,500 meters altitude.

COLOMBIA: El Cauca: Alto de Pasares, between Popayán and Coconuco, *Lehmann 5421* (B, type, F, G, K, Y).

Among the long-peduncled tacsonias with a reduced corona this species is recognized by its dense, brown pubescence as well as by the shape of its leaves.

The method of grouping the true tacsonias adopted in this revision is perhaps rather artificial, and may not represent actual relationship. Masters' classification on the basis of free or united bracts certainly does not bring related species into close proximity. Triana and Planchon relied on the character of the corona to subdivide their subgenus *Tacsonia*, but this is open to objection on the same grounds.

The coronal structure of the true tacsonias is very simple, and shows little of the variation occurring in *Plectostemma*, *Murucuja* and its related subgenera, and *Granadilla*. *Passiflora cremastantha* and the five following species, with long, slender peduncles and usually with polymorphic leaves, appear to represent a small, definite group.

141. **Passiflora leptomischa** Harms, Repert. Sp. Nov. 18: 295. 1922.

Stem subangulate, conspicuously striate, glabrous; stipules linear, 8 to 10 mm. long, spongiose-thickened toward apex; petioles up to 2 cm. long, bearing 4 to 6 minute glands; leaves dimorphic, unlobed and lanceolate or ovate-lanceolate, 7 to 10 cm. long, 2 to 3.5 cm. wide, long-acuminate, or 3-lobed nearly to base (lobes lanceolate, up to 1.5 cm. wide), rounded or subcordate at base, serrate-dentate, puberulent on nerves and veins above, densely short-pilosulous beneath; peduncles slender, 15 to 25 cm. long; bracts free to base, oblong, 2 to 2.5 cm. long, about 8 mm. wide, acuminate, lacinulate-dentate, deeply so at base; calyx tube cylindric, 5 to 8 cm. long, puberulent without; sepals oblong, 2.5 to 5 cm. long, 1 to 2 cm. wide, obtuse, aristulate; petals similar to sepals, slightly clawed at base; corona 1-ranked, tuberculate, the tubercles less than 0.5 mm. long; ovary fusiform, grayish-puberulent.

TYPE LOCALITY: Andes west of Popayán, Colombia.

DISTRIBUTION: Southern part of the Western Cordillera of Colombia, between 2,500 and 3,000 meters altitude.

COLOMBIA: El Cauca: Cerro Munchique, *Stübel 321b* (B). Cordillera west of Popayán, *Lehmann 5917* (B, type, F, K). El Derrumbo, *Killip 7972* (G, N, Ph, Y).

In leaf shape this species closely resembles certain forms of *P. antioquiensis*. The proportionately longer calyx tube at once differentiates it.

142. **Passiflora fimbriatistipula** Harms, Bot. Jahrb. 18: Beibl. 46: 11. 1894.

Stem angulate, glabrous; stipules ovate, 1 to 1.3 cm. long, 5 mm. wide, laciniate-fimbriate; petioles up to 1.5 cm. long, minutely glandular, tomentellous; leaves ovate, 5 to 6.5 cm. long, 2.5 to 3.5 cm. wide, acuminate, rounded or subcuneate at base, denticulate-serrate (teeth 1 to 2 mm. long), subcoriaceous, dark green, lustrous, glabrous and subtomentellous on the nerves above, lanate-tomentose beneath; peduncles 8 to 15 cm. long; bracts 2 to 2.5 (or up to 4.5)

cm. long, united below middle, the free portions irregularly serrate; calyx tube cylindric, slightly enlarged at throat, 5 (or up to 8) cm. long, light scarlet without, black-brown within, finely pilosulous without; sepals oblong, about 3.5 cm. long and 1.5 cm. wide, rounded at apex, aristate (awn 6 mm. long); petals similar and subequal to the sepals, orange-scarlet; corona reduced to a mere ring with a slightly undulate margin; operculum dependent, the margin recurved, minutely fimbriolate; ovary elliptic-oblong, villosulous.

TYPE LOCALITY: "Páramo of Las Delicias, 2,900 to 3,200 meters, Colombia."

DISTRIBUTION: Known only from the type locality in the Central Cordillera of Colombia, east of Popayán, 2,900 to 3,000 meters altitude.

COLOMBIA: El Cauca: Páramo de Guanacas, *Lehmann 6001* (B, type, K, N, Y).

This rare species is distinguished by the deeply cut stipules. The peduncles are stouter than in other species of this immediate relationship, though when developed they are long and pendulous.

The locality given for the type in Lehmann's field notes, deposited at Kew, is different from that mentioned at the place of publication of the species.

143. **Passiflora quindiensis** Killip, nom. nov.

Passiflora elegans Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 133. 1873. Not *P. elegans* Mast. (1872).

Stem terete, striate; stipules ovate, 1 to 1.5 cm. long, 5 to 7 mm. wide, cuspidate, oblique, incised-serrate; petioles up to 1.5 cm. long, minutely glandular; leaves 4 to 6 cm. long, up to 7 cm. wide between apices of lateral lobes, deeply 3-lobed (lobes about four-fifths the length of blade, ovate-oblong, 1 to 1.5 cm. wide, acuminate, cuspidate), subcordate at base, sharply ciliate-serrate, membranous, sparsely pilosulous above, grayish-tomentose and velutinous beneath; peduncles 15 cm. long, or more; bracts ovate-oblong, united below middle, 2 to 3 cm. long, serrulate, puberulent on both surfaces, reddish; calyx tube cylindric, about 8 cm. long, 0.8 cm. wide, glabrous; sepals oblong, about 3 cm. long, 1 cm. wide, mucronulate; petals narrowly oblong, truncate at apex; corona a scarcely elevated ridge (margin not sinuate or tuberculate); operculum deflexed, the margin fimbriolate; limen none; ovary ovoid-ellipsoidal.

TYPE LOCALITY: El Palmar, Quindío Trail, Colombia.

DISTRIBUTION: Known only from type locality, in the Central Cordillera of Colombia.

COLOMBIA: Tolima: El Palmar, Quindío Trail, *Goudot 1* (P, type of *P. elegans* Tr. & Planch.).

The exact position that this species should occupy among the tacsonias is doubtful. The general aspect of the plant and the united bracts suggest *P. mixta*, but because of the long, slender peduncles it is perhaps better placed near *P. leptomischa*. In the type specimen, apparently the only collection known, the involucre is detached from the rest of the plant and, as Triana and Planchon suggest, may belong to another species. The obsolescent corona, neither sinuate nor tuberculate along the margin, calls to mind *P. andina*, of the subgenus *Rathea*.

144. **Passiflora coactilis** (Mast.) Killip, Journ. Wash. Acad. Sci. 14: 212. 1924.

Tacsonia coactilis Mast. Bot. Jahrb. 8: 216. 1887.

Tacsonia Mariae Sodiro, Anal. Univ. Quito 18: 407. 1903.

Tacsonia Mariae var. *chimborazensis* Sodiro, Anal. Univ. Quito 18: 407. 1903.

Passiflora Mariae Harms in Engl. & Prantl, Pflanzenfam. ed. 2, 21: 506. 1925.

Stem subterete, rufo-lanate; stipules linear-subulate, 8 to 10 mm. long; petioles up to 2.5 mm. long, minutely glandular, rufo-lanate, often with numerous black hairs mixed with the tomentum; leaves 6 to 12 cm. long and wide, 3-lobed to middle (lobes triangular-ovate, obtuse or acute, mucronulate, the middle lobe much the larger, up to 5 cm. wide), cordate or subrotund at base, denticulate, subcoriaceous, above puberulent on the nerves, otherwise glabrous, beneath densely rufo-lanate, often with numerous stiff, black hairs on the midnerve and mixed in the tomentum, rugulose above, the nerves impressed; peduncles slender, 10 to 20 cm. long; bracts oblong-lanceolate, up to 5 cm. long, 1 cm. wide, acute, united for about 5 mm. above the base, rufo-tomentose, entire or slightly serrulate; flowers rose-colored; calyx tube cylindric, 8 to 10 cm. long, rufo-lanate without; sepals oblong, 5 to 7 cm. long, 1 to 2.5 cm. wide, obtuse, aristulate; petals similar to and slightly shorter than the sepals, obtuse; corona filamentose, in 2 series, the outer up to 3 mm. long, the inner 1 mm. or less long; operculum dependent, recurved at margin; ovary ovoid, rufo-tomentose; fruit subpyriform, about 9 cm. long, 4 cm. in diameter, glabrescent; seeds obovate, 8 mm. long,

6 mm. wide, retuse at apex, flattened, punctate at middle of each face, smooth at margin.

TYPE LOCALITY: Between Calicali and Mt. Corazón, Ecuador.

DISTRIBUTION: Mountains of central Ecuador.

ECUADOR: *André 309* (K). "Andes, 2,200 to 2,300 meters," *Jameson 249* (BM, G, Gen, K, P).—Pichincha: *Karsten* (V). Mt. Corazón, *Sodiro* in 1902 (*Mille 230;* N); *Lehmann 368* (Bo, K, type); *André 3654* (K).—Chimborazo: Tambolona, *Sodiro* in 1881 (N, type of *Tacsonia Mariae* var. *chimborazensis*).

This species is readily recognized by the shape of the leaves and the dense, brown indument which covers the stem, petioles, peduncles, and under surface of the leaves.

145. **Passiflora flexipes** Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 142. 1873.

Tacsonia flexipes Mast. Journ. Linn. Soc. 20: 26. 1883.

Stem subangulate, tomentellous, the younger part densely tomentose; stipules linear-subulate, 5 mm. long; petioles up to 5 cm. long, obscurely glandular; leaves polymorphic, unlobed and lanceolate or oblong-lanceolate, 10 to 20 cm. long, 5 to 8 cm. wide, acuminate, or 3-lobed to about 2 cm. from base (lobes ovate-oblong, 1 to 3 cm. wide, rarely one of the lateral lobes wanting), subcordate at base, sharply serrate, puberulent on the nerves and veins above, tomentose beneath; peduncles very slender, 25 to 40 cm. long; bracts free to base, oblong, cuspidate, incised-dentate; flowers pink; calyx tube cylindric, 8 to 11 cm. long, ventricose at base, finely puberulent; sepals oblong, about 5 cm. long, 1.5 cm. wide, aristate, deep rose-pink within, deep rose-pink at margin, brownish at center, with greenish midrib without; petals ovate-oblong, about 4.5 cm. long, 2 cm. wide, obtuse, deep rose-pink; corona filamentose, 1-ranked, the filaments slender, 3 to 4 mm. long, hyacinth-violet; operculum dependent, the recurved margin fimbrillate; ovary fusiform, closely sericeous.

TYPE LOCALITY: La Palmilla, Colombia.

DISTRIBUTION: Central part of the Central Cordillera of Colombia, 2,000 to 2,800 meters altitude.

COLOMBIA: Tolima: Mendiación, eastern slope of Quindío mountains, *André 2053* (K, Y). Quindío Trail, *Goudot* (P).—Caldas: La Palmilla, *Triana 2970* (BM, type, Gen, K, P). Salento, *Pennell 9332* (G, N, Ph, Y).

In several details this species strongly resembles *P. antioquiensis*. The elongate calyx tube and conspicuously filamentose corona are quite different, however. The detailed notes on the flowers are based on field observations made by Dr. Pennell.

146. **Passiflora insignis** (Mast.) Hook. Bot. Mag. 99: *pl. 6069.* 1873.

Tacsonia insignis Mast. Gard. Chron. 1873: 1113. *f. 239.* 1873.

Stem terete, densely lanate; stipules about 2 cm. long, 1 cm. wide, bipinnatisect, the segments acute; petioles up to 2 cm. long, obscurely 2–4-glandular, densely lanate; leaves ovate-lanceolate, 15 to 25 cm. long, 7 to 12 cm. wide, acute at apex, cordulate at base, denticulate, 3–5-nerved, coriaceous, above glabrous, lustrous, and rugulose, beneath densely ferruginous-lanate; peduncles 15 to 20 cm. long, stout; bracts ovate-oblong, distinct to base, 3.5 to 4 cm. long, 1 to 1.5 cm. wide, obtuse at apex, narrowed at base, short-fimbriate, concave; calyx tube cylindric, 3 to 4 cm. long, about 8 mm. wide, enlarged at base to about 15 mm., slightly ferruginous-tomentose without; sepals violet-crimson, oblong, 7 to 9 cm. long, nearly 2 cm. wide, obtuse, concave, keeled dorsally, the keel terminating in an awn 1.5 to 2 cm. long; petals oblong, 6 to 7 cm. long, about 1.5 cm. wide, obtuse, rose-purplish; corona in a single series, filamentose, the filaments erect, 8 to 10 mm. long, blue and white; operculum attached about 1 cm. above base of tube, dependent, about 7 mm. long, shallowly lacerate, the margin not recurved; ovary subglobose, obscurely 3-angled, densely rufo-lanate.

TYPE LOCALITY: Described from a plant grown in England "from seeds sent from South America (probably Peru)"; type seen at Kew.

ILLUSTRATIONS: Gard. Chron. 1873: 1113. *f. 239;* Bot. Mag. 99: *pl. 6069;* Garden 10: opp. p. 12. 1876; Fl. des Serres II. 10: *pl. 2083, 2084;* Belg. Hort. 24: 217.

DISTRIBUTION: Uncertain, perhaps Bolivia.

I strongly suspect that this is a horticultural hybrid, and am including it in the present treatment mainly because of the fact that Harms has created for the species a monotypic subsection of *Tacsonia, Insignes.* The *Index Londinensis* lists eight illustrations of this plant, but I have seen no herbarium material other than four specimens at Kew, all of which apparently came from the type plant in cultivation. The vegetative parts are almost identical with those of *P. callimorpha,* a species of *Distephana* with a very short calyx

tube and a second series of corona filaments borne well below the first series, and this perhaps is one of the parents of *P. insignis*.

147. **Passiflora adulterina** L. f. Suppl. 408. 1781.

Tacsonia adulterina Juss. Ann. Mus. Hist. Nat. 6: 393. 1805.

Stem angulate, floccose with grayish or brownish wool, at length glabrescent; stipules linear-subulate, 8 to 10 mm. long, 1 to 1.5 mm. wide, glandular-denticulate, coriaceous, deciduous; petioles up to 1 cm. long, minutely glandular; leaves oblong, 4 to 10 cm. long, 1.5 to 5 cm. wide, rounded and often emarginate at apex, rounded or subcordate at base, subentire and usually revolute at margin, 1-nerved (secondary nerves 5 to 7 to a side), glabrous above, densely lanate with brown wool beneath, thick-coriaceous, rugose above, the nerves impressed; peduncles up to 3 cm. long; bracts distinct to base, oblong-elliptic, about 2.5 cm. long, 1 cm. wide, abruptly acute at apex, tapering at base, flocculose or glabrescent without, purplish when dry; calyx tube cylindric, 5 to 8 cm. long, 0.8 to 1 cm. wide, glabrous; sepals oblong, 2.5 to 3 cm. long, 0.8 to 1 cm. wide, obtuse; petals similar and equal to the sepals; corona reduced to a mere ring; operculum dependent, the margin recurved, minutely denticulate; ovary obovoid, glabrous.

TYPE LOCALITY: Colombia.

ILLUSTRATIONS: J. E. Sm. Pl. Icon. Ined. 1: *pl. 24;* Cav. Diss. 10: *pl. 278;* G. Don, Hist. Dichl. Pl. 3: 57. *f. 7;* Mutis, Icon. Pl. Ined. 26: *pl. 36.*

DISTRIBUTION: Department of Cundinamarca, Eastern Cordillera of Colombia, between 2,500 and 3,000 meters altitude. Reported once from the Central Cordillera.

COLOMBIA: *Mutis 2271* (type collection; Ma, N), *5615* (Ma, N).— Cundinamarca: Bogotá, *Triana 186* (K), *2968* (BM, Brux, Gen, P, Y); *Goudot 2* (K, P); *Holton* in 1854 (K, Y); *Karsten* (V); *Hartweg 183* (K); *Lehmann 8772* (B); *Kalbreyer 1998* (B); *Apollinaire Marie 303* (Bog); *Dawe 170* (N); *Schultze 58* (B). Canaos, *Ariste Joseph A162* (Bog, N). Usme, *Ariste Joseph B36* (N). Uribe, *Ariste Joseph B34* (N). Guadalupe, *Instituto de La Salle* (Bog); *Goudot* (Bo).— Tolima: Quindío Trail, *Linden 1223* (P).

This is readily recognized among the entire-leaved, short-peduncled species by its thick, blunt leaves, with a nearly entire margin.

Passiflora adulterina and its close relative, *P. lanata*, are common about Bogotá. Each is reported from the Quindío Trail, across the

Magdalena Valley, by a single collector. Both Humboldt and Linden, who respectively report the occurrence of *P. adulterina* and *P. lanata* along the Quindío, collected also at Bogotá, and it is possible that there may be a confusion in their locality data.

148. **Passiflora lanata** (Juss.) Poir. in Lam. Encycl. Suppl. 2: 843. 1811.

Tacsonia lanata Juss. Ann. Mus. Hist. Nat. 6: 392. *pl. 59, f. 1.* 1805.

Stem subangulate, glabrous, the younger part flocculose; stipules linear-subulate, 1 to 1.2 cm. long, thickened at apex, the margin glandular-denticulate, revolute; petioles up to 1 cm. long, minutely glandular; leaves ovate or ovate-lanceolate, 6 to 11 cm. long, 3 to 5 cm. wide, acute, subcordate at base, subentire and slightly revolute at margin, glabrous above, densely lanate with brown wool beneath, thick-coriaceous, rugose above, the nerves impressed; peduncles up to 5.5 cm. long; bracts distinct to base, ovate-lanceolate, about 1.5 cm. long, 0.6 to 0.8 cm. wide, acuminate, rounded at base, densely lanate without; flowers salmon-pink ("white," *Masters*); calyx tube cylindric, 7 to 8 cm. long, glabrous; sepals oblong, 2.5 to 3 cm. long, 0.8 to 1 cm. wide, obtuse, aristulate; petals similar and equal to the sepals; corona reduced to a mere ring without tubercles or filaments; operculum dependent, the margin recurved, minutely denticulate; ovary obovoid, glabrous.

TYPE LOCALITY: "Andibus Quindiuensis," according to report of Humboldt.

ILLUSTRATIONS: Ann. Mus. Hist. Nat. 6: *pl. 59, f. 1;* J. E. Sm. Icon. Pict. Pl. Rar. *pl. 1.* 1790–1793.

DISTRIBUTION: Department of Cundinamarca, Eastern Cordillera of Colombia, between 2,500 and 3,000 meters altitude. Locality for the type doubtful.

COLOMBIA: Cundinamarca: *Wagner* (Bo). Bogotá, *Instituto de La Salle* (Bog). Peñón, *Popenoe 1116* (N, Y). Guadalupe, *Goudot* (P); *Ariste Joseph B71* (Bog, N). Manzanos, *Lindig 628* (BM). Sibaté, *Lehmann 7632* (B, K). Páramo de Guasca, *Cuatrecasas 3248* (Ma).—Tolima: Mt. Quindío, *Humboldt & Bonpland* (B, type).

This species is similar to *P. adulterina* and grows in the same general locality. It is distinguished from that by the ovate-lanceolate, acute leaves, the longer peduncles, and the rounded base of the bracts, characters which appear to be constant.

149. **Passiflora truxillensis** Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 135. 1873.

Stem terete or subangulate, densely ferruginous-tomentous; stipules subulate, 5 to 6 mm. long, coriaceous, strongly revolute; petioles up to 1 cm. long, minutely glandular; leaves ovate or ovate-lanceolate, 5 to 9 cm. long, 3 to 4 cm. wide, acuminate, cordate or subcordate at the base, unequally callous-serrate and slightly revolute at margin, glabrous above, densely lanate beneath, rugulose above, the nerves and veins impressed; peduncles up to 7 cm. long; bracts free to base, oblong-lanceolate, about 2 cm. long, 0.5 cm. wide, acute, pilosulous without; flower red(?); calyx tube cylindric, 4.5 to 5 cm. long, glabrous; sepals oblong, 2 to 3 cm. long, about 1 cm. wide, obtuse; petals similar and equal to the sepals; corona reduced to a ring, the margin sinuate; operculum dependent, the margin recurved, minutely denticulate; ovary narrowly ovoid, glabrous.

TYPE LOCALITY: Agua de Obispo, Trujillo, Venezuela.

DISTRIBUTION: Known only from the type locality, in western Venezuela, altitude about 2,300 meters.

VENEZUELA: Trujillo: Agua de Obispo, *Linden 286* (Gen, P, type); *Jahn 1181* (N).

This species resembles *P. lanata*, but is distinguished by the thinner, serrate leaves, a tomentose rather than a lanate indument, and a shorter, narrower calyx tube.

150. **Passiflora pamplonensis** Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 137. 1873.

Stem terete, tomentose; stipules setaceous, about 1 cm. long, denticulate, often thickened at apex; petioles 8 to 10 mm. long; leaves lance-oblong, 7 to 10 cm. long, 1.5 to 2.5 cm. wide, acuminate, obtuse or subcuneate at base, shallowly repand-dentate, penni-nerved, above glabrous, pubescent on nerves, beneath densely and softly pubescent, the nerves and veins impressed above; peduncles about 4 cm. long; bracts free to base, oblong-lanceolate, 3 to 3.5 cm. long, 1 cm. wide, acuminate, serrulate, slightly pubescent; flowers "yellow and red;" calyx tube cylindric, 6 to 8 cm. long, subglobose at base, pubescent without; sepals oblong, about 3 cm. long, obtuse; petals oblong, slightly shorter than sepals; corona sinuate or short-tuberculate; operculum deflexed, the margin recurved, subentire; ovary oblong, appressed-tomentose.

TYPE LOCALITY: La Baja, Department of Santander (formerly Province of Pamplona), Colombia.

DISTRIBUTION: Known only from type locality in the Eastern Cordillera of Colombia, altitude about 2,300 meters.

COLOMBIA: Santander: La Baja, *Funck & Schlim 1385* (BM, type, Gen).

From *P. truxillensis*, its nearest relative, this species is distinguished by proportionately narrower, less deeply toothed, larger bracts, and by the indument on the calyx tube and ovary.

151. **Passiflora lanceolata** (Mast.) Harms, Bot. Jahrb. 18: Beibl. 46: 11. 1894. Not *P. lanceolata* G. Don, an inadvertent use of the specific epithet for *lancifolia*.

Tacsonia lanceolata Mast. in Mart. Fl. Bras. 13, pt. 1: 536. 1872.

Passiflora acutissima Killip, Journ. Wash. Acad. Sci. 17: 428. 1927.

Stem subangular, pilosulous; stipules lanceolate, 1 to 1.5 cm. long, about 0.3 cm. wide, deeply pinnatisect, the segments few; petioles 5 to 7 mm. long, minutely biglandular at apex; leaves lanceolate, 4 to 8 cm. long, 1 to 1.5 cm. wide, attenuate-acuminate at apex, rounded or subacute at base, subentire, slightly revolute, 1-nerved (nerve deeply impressed above), coriaceous, glabrous; peduncles 5 to 5.5 cm. long; bracts lanceolate, distinct to base, 1.5 to 2 cm. long, 4 to 7 mm. wide, acute, laciniate, the teeth up to 3 mm. long; calyx tube cylindric, 7 to 8 cm. long, 1 cm. wide, dilated at base, glabrous; sepals oblong, 3 to 3.5 cm. long, about 1 cm. wide, obtuse, aristate dorsally; petals oblong, subequal to sepals; corona apparently tuberculiform; ovary glabrous.

TYPE LOCALITY: Mountains of Peru.

DISTRIBUTION: Known only from the type, probably from the mountains of northern Peru, in the Department of Amazonas.

PERU: *Mathews 1252* (K, type).

This appears to be the only species of the group of tacsonias with entire leaves and relatively short peduncles occurring outside of Venezuela and eastern Colombia. The pinnatisect stipules and free, laciniate bracts distinguish it at once from its allies.

Masters was in error in stating that the calyx tube was 18 to 20 cm. long. In the type, apparently the only specimen known, in no case is the tube over 7.5 cm. long, and the flowers are fully developed.

152. **Passiflora rugosa** (Mast.) Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 136. 1873.

Tacsonia rugosa Mast. in Mart. Fl. Bras. 13, pt. 1: 538. 1872.

Stem terete, densely rufo-villous; stipules narrowly linear, about 1 cm. long, deciduous; petioles 4 to 6 mm. long; leaves ovate-lanceolate, 4 to 7 cm. long, 2 to 4 cm. wide, acute at apex, rounded or shallowly cordate at base, repand-serrate, 1-nerved (principal secondary nerves 6 or 7 to a side), reticulate-veined (nerves and veins strongly impressed above, hence the leaves rugose, the nerves prominent beneath), coriaceous, glabrous above, densely rufo-tomentose beneath; peduncles 4 to 10 cm. long, villous; bracts 3 to 5 cm. long, united to middle into a broadly campanulate tube (free portions ovate-lanceolate, 1 to 1.5 cm. wide, minutely glandular-serrulate), rufo-tomentose without and within; calyx tube cylindric, 5 to 7 cm. long, about 1.3 cm. wide, glabrous or very sparingly pilosulous, yellow-green without, purple-pink within, paler toward base; sepals oblong, 3 to 4 cm. long, 1 to 1.5 cm. wide, obtuse, aristulate, red-pink without, darker at center, light pink within; petals oblong, slightly narrower than the sepals, light pink; corona in 2 red-purple, membranous bands with a few undulations; operculum dependent, white, pink at the recurved margin; ovary ellipsoidal, villous.

TYPE LOCALITY: San Pedro, near Ocaña, Colombia.

DISTRIBUTION: Eastern Cordillera of Colombia.

COLOMBIA: Norte de Santander: Páramo de San Pedro, near Ocaña, *Schlim 301* (BM, Bo, Brux, Gen, K, type, N, P). Between Pamplona and Toledo, 3,000 meters, *Killip & Smith 19871* (A, G, N, Y).

This and the following species are intermediate between the species with rugose, entire leaves and those with large, connate bracts, of which *P. mixta* is the best known representative.

153. **Passiflora eriocaula** Harms, Repert. Sp. Nov. 18: 295. 1922.

Stem terete, densely rufo-hirsute-villous; stipules linear, 7 to 10 mm. long, thickened at apex, deciduous; petioles 0.5 to 1.5 cm. long, with 3 or 4 glands imbedded in the indument; leaves ovate or lanceolate-ovate, 5 to 12 cm. long, 2.5 to 7 cm. wide, acute at apex, rounded or cordulate at base, dentate-serrate, 1-nerved (principal secondary nerves 6 to 9 to a side, prominulous), somewhat rugulose and essentially glabrous above, densely villous beneath, coriaceous; peduncles 8 to 10 cm. long, villous; bracts reddish brown, conspicuously nerved

(nerves deep red), 4 to 5.5 cm. long, united below middle, the free portions ovate-lanceolate, acute, denticulate; calyx tube cylindric, 8 to 10 cm. long, about 1 cm. in diameter, glabrous or finely pilosulous, reddish pink, yellow-green proximally without, deep purple, pure white proximally within; sepals oblong, 4 to 5.5 cm. long, about 2 cm. wide, obtuse, aristulate, reddish pink but true pink at margin without, true pink distally and at margin within, pinkish white at center; petals similar and subequal to the sepals, true pink; corona reduced to a single (or sometimes a second) low, black-purple, etuberculate ridge; operculum dependent, recurved at margin, white; nectar very sweet; gynophore white; ovary ellipsoidal, short-villous; styles pink; stigmas olive-green.

TYPE LOCALITY: Sisabita, Department of Santander, Colombia.

DISTRIBUTION: Department of Santander, Eastern Cordillera of Colombia, 3,000 to 3,600 meters altitude.

COLOMBIA: Santander: Sisabita, 3,000 meters, *Kalbreyer 1112* (B, type). Western slope of Páramo Rico, *Killip & Smith 17200* (G, N, Y).

This is distinguished from *P. rugosa* by larger, less rugose leaves, much larger flowers, and differently shaped bracts. The corona is not even slightly undulate, as in *P. rugosa*. The color details given above are derived from field notes made by Killip and Smith.

154. **Passiflora ampullacea** (Mast.) Harms in Engl. & Prantl, Pflanzenfam. 3, 6a: 91. 1893.

Tacsonia ampullacea Mast. in Mart. Fl. Bras. 13, pt. 1: 539. 1872.

Passiflora Hieronymi Harms, Bot. Jahrb. 18: Beibl. 46: 12. 1894.

Stem terete, striate, densely villous; stipules linear, 1 cm. long, about 0.2 mm. wide, 2-cleft near base; petioles 2 to 3.5 cm. long, villous, bearing near middle 1 or 2 rudimentary glands (or glandless?); leaves 6 to 11 cm. long, 6 to 12 cm. wide, 3-lobed about to middle (lobes oblong-lanceolate, 2.5 to 4 cm. wide, acute or acuminate), subcordate or rounded at base, closely serrate, membranous, minutely pubescent and densely brown-villous on veins above, tomentose beneath; peduncles 8 to 12 cm. long, villous; bracts ovate, 3 to 4 cm. long, 1.5 to 2 cm. wide, abruptly acuminate, free to base or united toward base, the margin entire or serrulate below, densely puberulent without, glabrescent but tomentose at margin within; flowers white or greenish white; calyx tube narrowly cylindric-funnel-shaped, 7 to 9 cm. long, 8 to 10 mm. wide at throat, gradually narrowed to a

width (near base) of 3 mm., abruptly dilated at base to a width of 7 mm., villosulous without, glabrous within; sepals oblong-ovate, 2 to 2.5 cm. long, 1 to 1.5 cm. wide, obtuse, minutely awned; petals similar to the sepals and slightly shorter; corona in 2 series, the upper tuberculate (tubercles up to 1.5 mm. long), the lower about 1 mm. distant, a mere ring; operculum dependent, the margin recurved; ovary ovoid, sericeous-villosulous; fruit ovoid, about 6 cm. long, 3.5 cm. in diameter, pubescent; seeds obovate, 5 to 6 mm. long, 3 to 4 mm. wide, reticulate.

TYPE LOCALITY: Cuenca, Ecuador.

DISTRIBUTION: Mountains of southern Ecuador, 2,600 to 2,800 meters altitude.

ECUADOR: Cañar: Cañar, *Rose 22697* (G, N, Y).—Azuay: Cuenca, *Jameson 94* (K, type); *Lehmann 4602* (B, type of *P. Hieronymi*, K, N, S); *Rose 24090* (N). "Columbia," but probably near Cuenca, *Lobb* (K).

The white or greenish white flowers of *P. ampullacea* are apparently unique in the subgenus *Tacsonia*. The species does not key out readily in the present treatment, as the bracts are wholly free in some specimens and united at the base in others. The peduncles are rather longer than in most of the species with which it is here associated, yet they are much stouter than in the group of species with long peduncles, and the foliage does not exhibit the dimorphism characteristic of that group.

155. **Passiflora gracilens** (Gray) Harms in Engl. & Prantl, Pflanzenfam. 3, 6a: 91. 1893.

Tacsonia gracilens Gray, U. S. Expl. Exped. 639. 1854.

Tacsonia boliviana Rusby, Mem. Torrey Club 3, pt. 3: 37. 1893.

Passiflora boliviana Harms, Repert. Sp. Nov. 19: 28. 1923.

Plant essentially glabrous: stem sharply quadrangular; stipules setaceous, 2 to 4 mm. long, purplish; petioles 5 to 10 mm. long, very slender, glandless or with 2 small glands at the apex, these often actually borne on the lateral nerves; leaves 1 to 4 cm. long, 2 to 5 cm. wide, 3-lobed nearly to base (lobes narrowly ovate-oblong, the basal divaricate), minutely serrulate or subentire, usually pale at margin, subcoriaceous, glabrous, or minutely puberulous above; peduncles up to 3 cm. long, slender, articulate near apex; bracts ovate, 5 to 8 mm. long, 2.5 to 5 mm. wide, acute or acuminate, minutely serrulate or entire, distinct to base, borne near base of flower, often early

deciduous; calyx tube narrowly cylindric, 1.5 to 2 cm. long, 0.3 to 0.5 cm. wide, slightly enlarged at base, without green at base, pink above, within bluish green; sepals oblong-lanceolate, 0.8 to 1.5 cm. long, 0.4 to 0.5 cm. wide, pink, narrowly keeled dorsally, the keel terminating in a filiform awn; petals subequal to the sepals, pink; corona reduced to a shallowly sinuate, purplish ridge; operculum white, about 5 mm. long, dependent, the margin recurved; ovary ovoid, glabrous; fruit ovoid, 2 to 3.5 cm. long, 1.5 cm. in diameter, subacute; seeds cuneate, 4 mm. long, 2.5 mm. wide, reticulate.

TYPE LOCALITY: Huariana, Peru.

DISTRIBUTION: Central Peru to central Bolivia, between 2,500 and 3,500 meters altitude.

PERU: Huánuco: Huariana, *Mathews 915* (BM, G, K, type). —Junín: Ingahuasi, Mantaro Canyon, *Killip & Smith 22177* (F, N, Y).—Huancavelica: Iscuchaca, Mantaro Valley, *Weberbauer 5679* (B); *Raimondi 11585* (B).—Cuzco: *Herrera 487* (V). Paucartambo, *Pennell 14170* (Ph). Colquipata, *Pennell 13791* (N, Ph, Y). Hacienda Ccapana, *Herrera 1061* (N). Hacienda Fanccac, *Herrera 2108* (N). Oropeza Valley, *Herrera 2599* (N). Hacienda Cutija, *Bues (Herrera 2126;* N). Huasao, *Herrera 3101* (N). Ollantaitambo, *Herrera 3342* (N). Urubamba Valley, *Herrera 1660* (B), *2243* (B).

BOLIVIA: Cochabamba: Cochabamba, *Bang 880* (B, BM, Bo, CM, K, Mo, N, Ph, Y, type of *Tacsonia boliviana*). Araca, *Herzog 2365* (B, S).

Passiflora gracilens is readily distinguished from other tacsonias by the small flowers. It bears a close general resemblance to species of the subgenus *Tacsonioides*, but the reduced corona and dependent operculum are characteristic of *Tacsonia*. Peruvian material recently collected by Pennell and by Herrera differs from type specimens of *P. boliviana* only in having a slightly (3 or 4 mm.) longer calyx tube. The length of the tube was given by Masters as about 3 cm., though in the type, the only collection cited by him, it is in reality not over 1.5 cm. long.

LOCAL NAMES: "Jukucha-jampajhuai," "pichincho-jampajhuai" (Inca).

156. **Passiflora Trianae** Killip, nom. nov.

Passiflora trisecta Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 134. 1873. Not *P. trisecta* Mast. (1872).

Plant essentially glabrous throughout; stem subangulate, striate; stipules linear, minutely glandular-serrulate, sometimes ciliate;

petioles glabrous or slightly pilosulous, 2–4-glandular, or the glands obsolete; leaves 2-lobed nearly to base (lobes linear, 1 to 5 mm. wide, suberect), cuneate or rounded at base, revolute at margin when dry, the nerves impressed above; peduncles shorter than the leaves; bracts borne just below the flower, oblong, about 2 cm. long, 7 to 8 mm. wide, acute, free to base, glandular-serrulate, membranous; calyx tube cylindric, 8 to 20 cm. long, inflated at base; sepals oblong, yellow; petals shorter than the sepals, rose-colored; corona in 1 series, repand-subtuberculate; operculum dependent, about 3.5 mm. long, recurved at margin, crenulate.

TYPE LOCALITY: La Baja, Colombia, 2,870 meters (type, *Funck & Schlim 1403*).

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: *pl. 41*.

DISTRIBUTION: Known definitely only from the type locality, in the Eastern Cordillera of Colombia.

COLOMBIA: *Mutis 4324* (Ma).—Santander: La Baja, 3,500 meters, *Killip & Smith 18100* (A, G, N, Y).

The type specimen of this species I have not seen, but the Mutis specimen, in flower, and the sterile material collected by Mr. Smith and myself at the type locality agree well with the description. The leaf lobes are much narrower than in most other species of *Tacsonia*, more like those of *P. anadenia* and *P. stenoloba*, West Indian members of *Plectostemma*. *Passiflora andina* has relatively narrow lobes, but that plant, because of the unusual arrangement of the petals, is not closely related to *P. Trianae*. According to the authors' description, the calyx tube is exceptionally long, 20 cm., but in the Mutis specimen it is only 8.5 cm. long.

157. **Passiflora Purdiei** Killip, sp. nov.

Planta fere ubique glabra; stipulae lanceolatae, attenuato-acuminatae, inciso-glanduloso-serrulatae; petioli minute glanduliferi; folia ad ¾ trilobata, lobis lineari-lanceolatis, serrulatis, subcoriacea; pedunculi 7 cm. longi; bracteae liberae, ovato-lanceolatae, glanduloso-serrulatae; tubus calycis cylindricus; sepala oblonga, aristata, petala ad faucem emergentia; corona biseriata, annuliformis; operculum deflexum; ovarium fusiforme, dense breviter velutinum.

Herbaceous vine, glabrous nearly throughout; stipules lanceolate, 1 to 1.5 cm. long, 6 to 9 mm. wide, attenuate-acuminate at apex, cordulate at base, suboblique, incised-glandular-serrulate nearly to base; peduncles up to 2 cm. long, bearing numerous obscure glands;

leaves 3-lobed about three-quarters their length (lobes linear-oblong, 1 to 2 cm. wide, acuminate, mucronulate, serrulate, the sinus acute), rounded at base, 3-nerved, subcoriaceous; peduncles slender, 7 cm. long; bracts distinct to base, ovate-lanceolate, 2.5 to 3 cm. long, about 1 cm. wide, acuminate at apex, glandular-serrulate; calyx tube cylindric, 4 cm. long, about 1 cm. in diameter, slightly wider at throat; sepals oblong, 3 cm. long, 1 to 1.2 cm. wide, obtuse, dorsally awned just below apex, the awn about 4 mm. long; petals inserted at throat of tube, oblong, about 2.5 cm. long, 8 to 10 mm. wide, obtuse; corona 2-ranked, the outer merely a dark band, the inner a slightly fleshy ridge; operculum borne near base of tube, 1 mm. long, dependent, the margin very slightly recurved, subentire; ovary fusiform, densely short-velutinous.

Type in the herbarium of the Royal Botanic Gardens, Kew, collected in Colombia by William Purdie.

This specimen was cited by Masters under *Tacsonia floribunda* but from notes which he had made upon the sheet it is evident that he was rather doubtful of its being the curious plant described as *Rathea floribunda* Karst. These notes call attention to the fact that the petals are inserted at the throat of the tube, not at the middle as in *T. floribunda* (i.e., *Passiflora andina* Killip), and that the stipules are broader. In addition to these two differentiating characters, the calyx tube is shorter and much narrower than in *P. andina* and the lobes of the leaves are broader and somewhat longer.

158. **Passiflora trifoliata** Cav. Icon. Pl. 5: 16. *pl. 427.* 1799.

Tacsonia trifoliata Juss. Ann. Mus. Hist. Nat. 6: 393. 1805.

Tacsonia trigona DC. Prodr. 3: 334. 1828.

Plant short-villous-hirsute throughout; stem terete, striate; stipules oblong-lanceolate or oblong, 1.5 to 3 cm. long, 0.8 to 1.5 cm. wide, acutish at apex, inequilaterally auriculate at base (basal lobes often overlapping), glandular-fimbriolate; petioles 1 to 3 cm. long, obscurely glandular; leaves trifoliolate, the leaflets ovate-oblong or linear-oblong, 3 to 5 cm. long, 1.5 to 2.5 cm. wide, acute, apiculate, rounded or acutish at sessile base, entire or serrulate, revolute at margin, fleshy-coriaceous, villous above, densely ferruginous-villous-hirsute beneath, the nerves and veins impressed above; peduncles terete, up to 9 cm. long, very stout; bracts ovate-oblong, 2 to 3.5 cm. long, 1.5 to 2 cm. wide, rounded at apex, distinct to base, closely fimbriate or somewhat laciniate-fimbriate; flowers

pendent; calyx tube cylindric, 3 to 4 cm. long, enlarged at the deeply 12-sulcate base, without villous, green, purple-tinged, within white, pink at base; sepals ovate-oblong, 2 to 3 cm. long, 1 to 1.5 cm. wide, obtuse, aristulate on outside just below apex, deep pink, white proximally; petals ovate-oblong, as long as and slightly narrower than the sepals; corona tuberculate, 2-ranked, the tubercles minute; operculum dependent, recurved at margin, pink; ovary ovoid, densely white- or brownish-villous or hirsute; fruit ovoid, 4 to 6 cm. long, 2.5 to 3.5 cm. in diameter, truncate at apex, longitudinally 3-grooved, villosulous; seeds obovate, about 6 mm. long, 4 mm. wide, reticulate.

TYPE LOCALITY: Guamantanga, Peru.

ILLUSTRATIONS: Cav. Icon. Pl. 5: *pl. 427;* Engl. & Prantl, Pflanzenfam. ed. 2, 21: 505. *f. 233, A, B.*

DISTRIBUTION: High mountains of central and southeastern Peru, between 3,500 and 4,000 meters altitude.

PERU: *Ruiz & Pavón* (BM, type of *Tacsonia trigona*, Bo, Gen, P); *Lobb 20* (K); *Savatier 490* (P); *Gay 542* (P); *Dombey 744* (B, Gen, P); *Wilkes Expedition* (G, N); *Haenke 1847* (Pr); *Raimondi 8597* (B). Guamantanga, *Née* (Ma, type). Cajavilca Valley, *Savatier 1631* (K). —Ancash: Tallenga, *Weberbauer 2878a* (B). Province of Cajatambo, *Weberbauer 2654* (B).—Lima: "Lima," *Weberbauer 261* (B, Gen). Río Blanco, *Killip & Smith 21636* (F, N, Y). Huaros, *Pennell 14723* (Ph). Río Rímac, *Forster* in 1905 (BM).—Huánuco: Piso, *Macbride & Featherstone 579* (F).—Junín: Tarma, *Mathews 674* (BM, G, V). Huancayo, *Ledig 4* (N). Huariaca, *Sawada P97* (N).—Cuzco: Paucartambo, *Herrera 485* (B).

An excellently marked species, with trifoliolate leaves and covered throughout with a dense indument. The only species with which it might be confused is *P. trisecta*, of the subgenus *Granadillastrum*. From this it differs in a much longer calyx tube and in less deeply cut stipules and bracts.

The Lobb specimen, upon which the occurrence of this species in Colombia is based, most certainly came from Peru.

LOCAL NAME: "Naupa-machu-jamppajhuai" (Inca).

159. **Passiflora Jamesoni** (Mast.) Bailey, Rhodora 18: 156. 1916.

Tacsonia Jamesoni Mast. in Mart. Fl. Bras. 13, pt. 1: 537. 1872.

Plant glabrous throughout; stem angulate; stipules oblong-lanceolate, 1.5 to 2.5 cm. long, 7 to 8 mm. wide, obsoletely 2–3-glandular at summit or glandless; leaves 3 to 8 cm. long, 5 to 11 cm.

wide, 3-lobed to below middle (lobes subelliptic, 1.5 to 3.5 cm. wide, acute or subobtuse, mucronate, the lateral widely divergent), subcordate at base, spinulose-dentate, subcoriaceous, shining above; peduncles up to 10 cm. long; bracts ovate-oblong, 2.5 to 3.5 cm. long, 1 to 1.5 cm. wide, laciniate-pectinate, borne about 1.5 cm. below base of flower; flowers rose-colored; calyx tube cylindric, 8 to 10 cm. long; sepals oblong, 3.5 to 5 cm. long, 1.5 to 2 cm. wide, obtuse, aristulate; petals similar and subequal to the sepals; corona minutely tuberculate, purplish; operculum dependent, recurved at margin, minutely fimbriolate; ovary ellipsoidal, glabrous.

TYPE LOCALITY: Andes of Ecuador.

DISTRIBUTION: High mountains of central Ecuador, about 4,000 meters altitude.

ECUADOR: Pichincha: Mt. Pichincha, *Jameson 56* (BM, Bo, G, Gen, K, type, N, Y); *Holmgren 655* (B, S). Mojanda, *Sodiro* in 1903 (*Mille 231;* N).—Chimborazo: Chambo, *Mille* in 1912 (N).

This is a well marked species, characterized by deeply cleft bracts and stipules and unusually large sepals.

160. **Passiflora pinnatistipula** Cav. Icon. Pl. 5: 16. *pl. 428*. 1799.

Tacsonia pinnatistipula Juss. Ann. Mus. Hist. Nat. 6: 393. 1805.

Passiflora pennipes J. E. Sm. in Rees, Cycl. 26: *Passiflora* No. 48 1819.

Passiflora chilensis Miers, Travels 2: 522. 1826.

Tacsonia pinnatistipula var. *pennipes* DC. Prodr. 3: 334. 1828

Tacsonia micradena DC. Prodr. 3: 334. 1828.

Tacsonia pennipes M. Roemer, Fam. Nat. Syn. 2: 194. 1846.

Tacsonia Purupuru DC. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 537. 1872, as synonym.

Stem angulate, the younger parts white-tomentose or lanate, the older glabrate; stipules 5 to 7 mm. long, 4 to 5 mm. wide, pinnatisect or palmately parted into filiform divisions; petioles up to 3.5 cm. long, minutely 4–6-glandular, glands sessile; leaves 5 to 10 cm. long, 6 to 13 cm. wide, 3-lobed about four-fifths their length (lobes lanceolate or oblong-lanceolate, 1 to 3.5 cm. wide, acute or acuminate, mucronate, the lateral divergent at about 45 degrees from the middle lobe), subcordate at base, sharply serrate, coriaceous, rugose and glabrous above, densely white- or grayish-lanate beneath; peduncles up to 7 cm. long; bracts entire to base, ovate, 1 to 1.5 cm. long, 1 to

1.3 cm. wide, acute, mucronate, remotely and sharply serrate, chartaceous, tomentose or glabrescent, usually reddish purple without, finely pubescent within; calyx tube cylindric, 4.5 to 5 cm. long, about 1 cm. in diameter, bright pink and densely cano-tomentose, rarely glabrous, without, white within and blue-tinged toward throat; sepals oblong, 3 to 4 cm. long, about 1 cm. wide, obtuse, awned dorsally just below apex, greenish or pinkish and cano-tomentose without, white within; petals subequal to sepals, obtuse, white, faintly blue-tinged; corona in 2 series, the outer filamentose, 1.5 to 2 cm. long, bright blue or purplish blue, or white, purple only toward base, the inner reduced to a ring of minute, deep purple tubercles 1 mm. or less long; operculum white, dependent, 5 mm. long, the margin recurved, minutely crenulate; ovary pyriform, white-tomentose; fruit subglobose, about 5 cm. in diameter, subtomentose or glabrate, yellow-green, edible; seeds oblong, 6 mm. long, 5 mm. wide, reticulate, the axis slightly curved.

TYPE LOCALITY: Talcahuano, Chile.

ILLUSTRATIONS: Cav. Icon. Pl. 5: *pl. 428;* Kerner, Hort. Sempervir. *pl. 607;* Bot. Mag. 70: *pl. 4062;* Bot. Reg. 18: *pl. 1536;* Paxton, Mag. 1: 249.

DISTRIBUTION: Probably a native of Peru or Chile, but frequently cultivated in the Andes from eastern Colombia to central Chile and central Bolivia, at altitudes from 2,500 to 3,800 meters.

CALIFORNIA: Pacific Beach, cultivated, *Kumm* in 1930 (N).

COLOMBIA: Norte de Santander: Between Mutiscua and Pamplona, *Killip & Smith 19700* (A, G, N, Y).—Cundinamarca: Bogotá, *Karsten* (V); *Dawe 299* (N); *Triana 2969* (BM); *Holton 706* (Y). Zipacón, *Lehmann 2509* (Bo, N). Nemocón, *Popenoe 1078* (N).

ECUADOR: *Sodiro (Mille 236;* N); *Couthouy* in 1855 (G).—Pichincha: Quito, *Lehmann 8256* (B, N, S); *Hartweg 1015* (Bo, Gen, Y). Tambillo, *Mille 232* (N). Pifo, *Mille 135* (N).—Tungurahua: Ambato, *Pachano 89* (N).

PERU: *Dombey 743* (Gen, P); *Pavón* (B, Gen); *Mathews* (BM).—Junín: Tarma, *Ruiz & Pavón* (BM, type of *P. micradena,* Bo); *Killip & Smith 21938* (F, N, Y). Ocopa, *Killip & Smith 22012* (F, N, Y). Huancayo, *Killip & Smith 22034* (F, N, Y); *Ledig 5* (N). Between Tarma and Palca, *Weberbauer 1733* (B).—Cuzco: Saxaihuamán, *Pennell 13567* (Ph). Pisac, *Pennell 13732* (Ph). Cuzco, *Herrera 295* (B). Paucartambo, *Herrera 486* (N). Guispicanchi,

Herrera 2586 (N), *2605* (N). Ollantaitambo, *Cook & Gilbert 475* (N). Tinta, *Cook & Gilbert 228* (N).

BOLIVIA: Ayopaya, *Weddell 4130* (P); *Cárdenas 3184* (N). Tunari, *Kuntze* in 1892 (Y).—Cochabamba: Cochabamba, *Herzog 2106* (B). Illimani, *Julio II.158* (N), *II.230* (N). Tiraque, *Steinbach 8722* (G).

CHILE: *Bridges* (Gen); *Hooker* (Y); *Cuming 50* (V).—Aconcagua: Aconcagua, *Philippi* in 1876 (B, Gen, V).—Valparaíso: Valparaíso, *Née* (Ma); *Bertero* (G, P); *Cuming 562* (BM, Gen), *565* (BM, Gen, Y).—Concepción: Talcahuano, *Née* (Ma, type). Concepción, *Miers* (BM, type of *P. chilensis*).—Valdivia: Valdivia, *Philippi* (N).

This well known, extensively cultivated species is one of those which connect the subgenera *Tacsonia* and *Granadilla*. Triana and Planchon placed this and certain other species with a filamentose, rather than tuberculate, corona in a separate section, but as all gradations are to be found from a short-tuberculate to a long-filamentose corona, it is difficult to delimit a section on this basis.

The type of *Tacsonia micradena* differs in only slight details from typical *P. pinnatistipula*.

LOCAL NAMES: "Tin-tin," "purupuru," "tacso" (Peru).

160a. **Passiflora rosea** (Karst.) Killip, comb. nov. (*Passiflora pinnatistipula*×*P. mollissima*.)

Poggendorffia rosea Karst. Linnaea 28: 438. 1856.

Tacsonia rosea Sodiro, Anal. Univ. Quito 18: 343. 1903.

Stem terete (the younger parts subangulate), densely ferruginous-tomentose; stipules linear-lanceolate, about 1 cm. long, 3 mm. wide at base, long-acuminate, denticulate toward base, laciniate-dentate above middle; petioles up to 2.5 cm. long, 6–8-glandular, the glands stipitate; leaves 5 to 10 cm. long, 6 to 12 cm. wide (between tips of lateral lobes), 3-lobed to slightly below middle (lobes ovate or ovate-oblong, 2 to 4 cm. wide, acute), shallowly cordate or subtruncate at base, sharply serrate, 5-nerved, subcoriaceous, finely and softly pubescent above, densely grayish-tomentose beneath; peduncles up to 5 cm. long; bracts free to base, cordate-ovate, 2 to 2.5 cm. long, 1.5 to 2 cm. wide, acutish, tomentose without and within; calyx tube 4.5 to 5 cm. long, ventricose at base and near middle, dark green and densely pubescent without, cream-colored and glabrous within; sepals oblong-lanceolate, 2.5 to 3 cm. long, 0.8 to 1 cm. wide, obtuse, dorsally awned just below apex, dark green without, bright pink

within; petals similar and subequal to sepals, obtuse, pink; corona in 2 series, filamentose, the outer 8 to 10 mm. long, pink at apex, shading through purple to deep blue at base, the inner borne 8 to 10 mm. above floor of tube, 3 to 6 mm. long, white; operculum dependent, the margin recurved, minutely crenulate; gynophore 3 to 4.5 cm. long, the filaments of the stamens arising below the middle, the lower part of the gynophore about 2 mm. thick, the upper part about 1 mm. thick, glabrous, except for a villous indument just below the filaments and just below the ovary; filaments of stamens 3 to 3.5 cm. long, erect; anthers basifixed, linear-oblong, about 1.5 cm. long, 0.5 cm. wide, only a small portion near margin pollen-bearing; ovary ovoid, densely white-sericeous-tomentose; fruit ovoid, about 8 cm. long and 2.5 cm. in diameter, villosulous; seeds broadly obovate, about 6 mm. long and 5 mm. wide, closely reticulate.

TYPE LOCALITY: Bogotá, Colombia.

ILLUSTRATIONS: Karst. Fl. Columb. 1: *pl. 15;* Rev. Chil. Hist. Nat. 11: *pl. 10.* 1907.

DISTRIBUTION: Eastern Cordillera of Colombia to southeastern Peru, between 2,800 and 3,200 meters altitude; cultivated, or occurring wild as a natural hybrid.

COLOMBIA: Cundinamarca: Sabana de Bogotá, *Karsten* (B, P, V, type); *Lehmann 2624,* in part (B, K); *Apollinaire Marie* (fruiting specimen, May, 1928; Bog, N).

ECUADOR: Pichincha: Pifo, *Sodiro* in 1903.

PERU: Junín: Tarma, *Killip & Smith 21885* (N, Y). Huanacayo, *Chávez 129* (B).—Cuzco: Paucartambo, *Herrera 2999a* (N).

Karsten and Triana first noticed this remarkable plant in a garden at Bogotá, Colombia, and Karsten based the genus *Poggendorffia* upon it, later figuring it in his *Flora Columbiana.* It differs from all other species of *Passiflora* in having the free portion of the stamen filaments begin just below the *middle* of the gynophore, rather than at its apex at the base of the ovary. Triana and Planchon (Ann. Sci. Nat. V. Bot. 17: 140, footnote) and Bentham and Hooker (Gen. Pl. 1: 811) considered it an abnormal or monstrous form of *Passiflora (Tacsonia) pinnatistipula.* Masters merely listed "*Poggendorffia rosea*" as a synonym of *Tacsonia pinnatistipula.* Sodiro transferred the species to *Tacsonia,* and suggested that the plant was a hybrid between *P. pinnatistipula* and *P. mollissima.*

Karsten, in commenting adversely (Bot. Jahrb. 8: 352–353. 1887) on Bentham and Hooker's reduction to *Tacsonia* of his genera *Poggendorffia* and *Rathea*, says:

"The reasons which persuaded Bentham-Hooker to consider *Poggendorffia* as a monstrous form of *Tacsonia pinnatistipula* DC. (not *pinnatifida*) are not given. In the description of the new species I pointed out the general similarity of *Poggendorffia rosea* to *pinnatistipula* and mentioned the more important differences between them in addition to the one in the construction of the stamens, on which the generic difference is based. The petioles of *P. rosea* have three glands on each side toward the apex, which in *T. pinnatistipula* are lacking; the stipules of the former are ovate-lanceolate and sharply serrate, those of the latter linear and long-setaceous-pinnatisect; the three involucral bracts subtending the flower are united at the base in *Poggendorffia rosea*, separate in *Tacsonia pinnatistipula;* in *Poggendorffia* the filaments are adnate to the gynophore for not quite half its length whereas in *T. pinnatistipula* they are adnate up to the ovary and are twice as long as the calyx tube; in *Poggendorffia* the anthers are attached at the base and terminate in a leaflike tip; in *Tacsonia* they are versatile; the fruit of *Poggendorffia* is ellipsoid (1: 2. 25); that of *T. pinnatistipula* is described by Lindley (Bot. Reg. 18: *pl. 1536*) as yellow, round, downy, about the size of a hen's egg. All the flowers of the *Poggendorffia* which I have studied are regularly and uniformly developed; all seeds contained an embryo capable of germination. I saw nothing monstrous in this plant."

In spite of these observations, I am inclined to think that the solution suggested by Sodiro is the correct one. Mr. Smith and I found a roadside bank covered with this plant near Tarma, Peru, there being every indication that it was growing naturally. Close beside it was typical *P. pinnatistipula*, and a short distance away were plants of true *P. mollissima*. Most of the specimens cited above bear notes that they were from cultivated plants.

161. **Passiflora Mandoni** (Mast.) Killip, Journ. Wash. Acad. Sci. 14: 213. 1924.

Tacsonia Mandoni Mast. in Mart. Fl. Bras. 13, pt. 1: 538. 1872.

Passiflora Steinbachii Harms, Notizbl. Bot. Gart. Berlin 10: 815. 1929.

Stem angulate, floccose-tomentose; stipules 5 to 6 mm. long, pinnatifid into narrowly linear segments; petioles 1 to 1.5 cm. long, obscurely 6-glandular, the glands imbedded in the indument; leaves

ovate-oblong in general outline, 6 to 10 cm. long, 4 to 11 cm. wide, 3-lobed one-quarter to one-third their length (lobes deltoid-ovate, 1.5 to 3 cm. wide at base, acute, apiculate, the middle lobe the longer), shallowly cordate, serrate, 3-nerved, coriaceous, rugose and glabrous or sparingly hirtellous above, ferruginous-tomentose beneath; peduncles terete, 4 to 14 cm. long; bracts oblong, about 3 cm. long, distinct to base, obtuse, serrate; calyx tube cylindric, 6 to 10 cm. long, 0.8 to 1 cm. wide, ventricose at base, ferruginous-tomentose without; sepals oblong, 3 to 3.5 cm. long, 0.8 to 1 cm. wide, obtuse, aristate, ferruginous-tomentose without; petals linear-oblong, 2 to 2.5 cm. long, obtuse, glabrous, white; corona filamentose, 1-ranked, the filaments terete, up to 8 mm. long; operculum dependent, recurved at margin; ovary elliptical, densely ferruginous-hirsute-tomentose; fruit ovoid(?), the exocarp hard, brittle, at length glabrescent; seeds ovate, 7 to 8 mm. long, 4 to 5 mm. wide, reticulate.

TYPE LOCALITY: Near Soratá, Bolivia.

DISTRIBUTION: Mountains of western and central Bolivia, 2,500 to 4,000 meters altitude.

BOLIVIA: La Paz: Cochipata, near Soratá, *Mandon 609* (P). Mt. Chileca, near Soratá, *Mandon 616* (Gen, K, type, P), *617* (G). Soratá, *Tate 789* (Y).—Cochabamba: Cerros de Incachaca, *Steinbach 5765* (B, type of *P. Steinbachii*, F); *Werdermann 2068* (B). Chaparé, *Steinbach 9523* (B, G, S).

Related to *P. pinnatistipula*, this species is at once distinguished by differently shaped leaves, a narrower calyx tube, and different indument. *Passiflora Mandoni* apparently is restricted to Bolivia, the Ecuador specimen of Jameson's, cited as this species in Masters' monograph, proving to be a wholly different plant (*P. coactilis*).

162. **Passiflora Matthewsii** (Mast.) Killip, Journ. Wash. Acad. Sci. 17: 428. 1927.

Tacsonia Matthewsii Mast. in Mart. Fl. Bras. 13, pt. 1: 539. 1872.

Stem terete, the younger parts subangular, tomentellous; stipules narrowly linear, 2.5 to 3 mm. long; petioles about 1 cm. long, 6-glandular; leaves 5 to 6 cm. along midnerve, 3.5 to 4 cm. along lateral nerves, 4 to 6 cm. between apices of lateral lobes, 3-lobed to or slightly below middle (lobes ovate-lanceolate or oblong-lanceolate, 1 to 1.5 cm. wide, acute), cuneate at base, serrulate, coriaceous, glabrous above, densely grayish-tomentose beneath; peduncles 1.5 to 2 cm. long, stout, articulate near apex; bracts about 2.5 cm. long, connate to middle, tomentellous, the free portions lanceolate, acute; flowers

rose, the sepals and petals densely spotted with deeper rose within; calyx tube cylindric, about 4 cm. long, tomentellous without, glabrous and densely streaked with purple within; sepals oblong, 2 to 2.5 cm. long, 7 to 8 mm. wide, obtuse, aristulate just below apex, pilose without; petals similar and subequal to the sepals; corona minutely tuberculate, the tubercles 1 to 1.5 mm. long; operculum dependent, slightly recurved at margin; gynophore densely pilose.

TYPE LOCALITY: Chachapoyas, Peru.

DISTRIBUTION: Known only from the type locality, in the mountains of northern Peru.

PERU: Amazonas: Chachapoyas, *Matthews* (BM, K, type).

Among the few tacsonias with connate bracts and linear stipules this is readily recognized.

163. **Passiflora parvifolia** (DC.) Harms in Weberbauer, Pflanzenw. Per. And. 253. 1911.

Tacsonia parvifolia DC. Prodr. 3: 335. 1828.

Passiflora brachychlamys Harms, Notizbl. Bot. Gart. Berlin 10: 815. 1929.

Plant glabrous throughout or pilosulous on the stem, petioles, bracts, and under surface of the nerves; stem 4–5-angular; stipules semi-ovate, 6 to 10 mm. long, 3 to 4 mm. wide, attenuate-acuminate, coarsely and remotely serrate; petioles 1 to 2 cm. long, slender, minutely 3–7-glandular; leaves 3-lobed to below middle, 2 to 3 cm. long, 3 to 6 cm. wide between apices of lateral lobes (lobes ovate, ovate-oblong, or ovate-lanceolate, 0.7 to 1.5 cm. wide, obtuse or acutish, the lateral divergent at slightly less than right angles from the middle lobe), rounded or subtruncate at base, sharply serrulate; peduncles 3 to 6 cm. long, rarely shorter, very slender; bracts 2.5 to 3 cm. long, connate one-half to three-quarters their length, the tube subconical, about 1.5 cm. wide at base, reddish, the free portions ovate-lanceolate, acute; calyx tube cylindric, 6 to 9 cm. long, up to 1 cm. wide, dull rose-green or rose-red, glabrous; sepals oblong, 2 to 2.5 cm. long, 1 to 1.3 cm. wide, obtuse, aristulate on outside just below apex, brighter red than tube on outside; petals similar and subequal to the sepals; corona minutely tuberculate, 1-ranked; operculum dependent, recurved at margin; ovary narrowly ellipsoidal, glabrous.

TYPE LOCALITY: Peru.

DISTRIBUTION: Mountains of central and southeastern Peru, 3,350 to 4,300 meters altitude.

PERU: *Ruiz & Pavón 533* (BM, type, Bo, Gen, Ma); *Lobb* (K). Tambo, *Pearce 309* (BM).—Huánuco: Huánuco, *Weberbauer 3329* (B); *Macbride & Featherstone 2198* (F, N). Tambo de Vaca, *Macbride 4405* (F, N). Mito, *Macbride & Featherstone 1823* (F, N). Muña, *Pearce* in 1863 (BM). Yanano, *Macbride 5743* (F, N).—Cuzco: Province of Paucartambo, 3,350 meters, *Herrera 484* (B, type of *P. brachychlamys*). Hacienda Ccapana, *Herrera 588* (B).

Another well marked species, easily recognized by its small, deeply lobed leaves, very slender peduncles, and the broad tube formed by the cohesion of the bracts. It appears to be confined to Peru. The Colombian specimen collected by Lobb, cited as this by Masters, probably came from Peru, and Pearce's Ecuador plant (*No. 35*), also placed here by Masters, is *P. cumbalensis*.

LOCAL NAME: "Samppajhuai" (Cuzco).

164. **Passiflora Roseorum** Killip, Journ. Wash. Acad. Sci. 17: 427. 1927.

(?)*Tacsonia cyanea* var. *pubescens* Sodiro, Rev. Chil. Hist. Nat. 11: 154. 1907.

Stem angular, striate, densely tomentulous; stipules oblong, 1.5 cm. long, 8 to 9 mm. wide, oblique and subcordate at base, fimbriate-dentate, the teeth 2 to 3 mm. long, not gland-tipped; petioles up to 1.5 cm. long, bearing 2 or 3 rudimentary glands, or glandless; leaves 3.5 to 4 cm. long, 4.5 to 5 cm. wide, 3-lobed (lobes triangular-ovate or suborbicular, 1.5 to 2 cm. wide, rounded at apex, the angle at sinus between middle and lateral lobes about 90 degrees), truncate at base, 5-nerved, glandular-serrulate, thick-coriaceous, glabrous and sublustrous above, densely brown-tomentose beneath, the nerves and veins impressed above; peduncles up to 5 cm. long; bracts 4 cm. long, united two-thirds their length (free portions ovate-lanceolate, about 1.5 cm. wide, abruptly acuminate), puberulent without, tomentose within; flowers violet; calyx tube cylindric, 7 to 8 cm. long; sepals oblong, about 3 cm. long, 1.5 cm. wide, obtuse, minutely awned dorsally just below apex; petals subequaling the sepals, obtuse; corona reduced to a deeply crenulate ring, scarcely tuberculate; operculum dependent, the margin recurved, subentire; gynophore slender, not exserted; ovary obovoid, glabrous.

TYPE LOCALITY: Zaraguro, Ecuador.

DISTRIBUTION: Known only from the type locality, in the mountains of southern Ecuador.

ECUADOR: Loja: Zaraguro, *Rose, Pachano & Rose 23154* (N, type).

This may be a hybrid between *P. Jamesoni* and *P. cumbalensis*, the fringed stipules suggesting the former and the small, shallowly lobed leaves the latter. Unlike either of these, the under surface of the leaves and the involucre are covered with a dense, brown tomentum.

165. **Passiflora glaberrima** (Juss.) Poir. in Lam. Encycl. Suppl. 2: 843. 1811.

Tacsonia glaberrima Juss. Ann. Mus. Hist. Nat. 6: 394. 1805.

Plant glabrous throughout; stem terete, the younger parts subangular; stipules semi-ovate, about 1 cm. long, 0.4 cm. wide, acuminate, callous-serrate; petioles up to 1.5 cm. long, 2–4-glandular at apex, the glands stipitate, 2.5 to 3 mm. long; leaves 3 to 5 cm. long, 4.5 to 7 cm. wide, 3-lobed four-fifths their length (lobes ovate, 1 to 1.5 cm. wide, acute, mucronulate, sharply dentate, the lateral horizontally divaricate or slightly reflexed, nearly as long as the middle lobe), 3-nerved (nerves prominent beneath), coriaceous; peduncles about 1.5 cm. long, slender; bracts about 1.5 cm. long, connate below middle, the free portions ovate, 0.5 to 0.6 cm. wide at base, acute; flowers violet; calyx tube cylindric, 3.3 cm. long, 5 to 6 mm. wide; sepals oblong, 1 to 1.5 cm. long, obtuse, aristate just below apex; petals subequal to the sepals; corona reduced to a low, etuberculate ring; operculum dependent, recurved at margin; ovary ellipsoidal.

TYPE LOCALITY: Páramo de Guamani, Peru.

DISTRIBUTION: Known only from the type locality, in northern part of Peru.

PERU: Piura: Páramo de Guamani, *Humboldt & Bonpland* (B, P, type).

This is the earliest described species of a small group of tacsonias with blue, violet, or magenta flowers. The plants are essentially glabrous throughout, and the glands, usually two in number, are borne at the apex of the petiole.

Passiflora glaberrima is known apparently only from the single collection made by Humboldt and Bonpland, the second one cited by these authors, from Loja, being *P. cumbalensis*. The specimen in the Jussieu Herbarium at Paris is without flowers, but the one

in the Humboldt Herbarium there has a single, fully developed flower, the tube of which is 3.3 cm. long, the species thus being distinguished from *P. cumbalensis*, the commonest member of this group.

166. **Passiflora cumbalensis** (Karst.) Harms, Bot. Jahrb. 18: Beibl. 46: 13. 1894.

Tacsonia glaberrima var. *loxensis* M. Roemer, Fam. Nat. Syn. 2: 195. 1846.

Tacsonia cumbalensis Karst. Linnaea 30: 161. 1859 or 1860.

Tacsonia glaberrima var. *cumbalensis* Mast. Trans. Linn. Soc. 27: 628. 1871; in Mart. Fl. Bras. 13, pt. 1: 540. 1872.

Passiflora glaberrima var. *cumbalensis* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 132. 1873.

Passiflora Goudotiana Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 132. 1873.

Tacsonia hederacea Mast. Journ. Linn. Soc. 20: 29. 1883. Not *P. hederacea* Cav. (1790).

(?)*Tacsonia tungurahuae* Sodiro, Anal. Univ. Quito 18: 345. 1903.

Tacsonia cyanea Sodiro, Anal. Univ. Quito 18: 410. 1903. Not *P. cyanea* Mast. (1872).

Tacsonia cyanea var. *insignis* Sodiro, Anal. Univ. Quito 18: 410. 1903.

Passiflora ecuadorica Killip, Journ. Wash. Acad. Sci. 14: 212. 1924.

Plant glabrous throughout, except the inside of the bracts and sometimes the ovary; stem angulate, conspicuously striate; stipules semi-ovate, 5 to 15 mm. long, 3 to 5 mm. wide, attenuate-cuspidate, callous-serrate, coriaceous; petioles up to 2.5 cm. long, conspicuously 2–4-glandular toward apex, the glands about 1 mm. thick; leaves 3 to 9 cm. long, 4 to 13 cm. wide, shallowly to deeply 3-lobed (lobes variable, broadly triangular-ovate to ovate-lanceolate, 2 to 4.5 cm. wide, acute or rounded, subequal, or the middle one produced, the lateral lobes subascending, divaricate, or reflexed), callous-serrate, truncate, rounded, or cordate, coriaceous, dark green above, paler beneath; peduncles 3 to 7 cm. long; bracts 3.5 to 5 cm. long, reddish, tomentulous within, connate to middle, the free portions acute, entire; flowers blue, magenta, or lilac-purple; calyx tube cylindric, 7 to 11 cm. long; sepals oblong, 2.5 to 3.5 cm. long, 1 to 2 cm. wide, obtuse, dorsally aristulate just below apex; petals subequal to the sepals; corona tuberculate or subentire; operculum dependent, about 8 mm. long, the margin recurved, minutely fimbriolate; ovary fusi-

form, glabrous or rarely puberulent; fruit narrowly ovoid, 6 to 10 cm. long, 2 to 3.5 cm. in diameter; seeds obovate, 6 to 8 mm. long, 3 to 4 mm. wide, reticulate, the axis slightly curved.

TYPE LOCALITY: Volcán Cumbal, Department of Nariño, Colombia.

DISTRIBUTION: Mountains of Colombia and Ecuador, 2,500 to 3,000 meters altitude.

COLOMBIA: Cundinamarca: Zipacón, *Popenoe 1054* (N, Y). Between Sibaté and Fusagasugá, *Lehmann 8269* (K). Bogotá, *Tracey 19* (K).—Putumayo: Páramo del Tábano, *Archer 3401* (N); *García 4645* (N).—Tolima: Barsinal, *Triana 2463* (BM). Lagunetas, Quindío Trail, *Goudot* in 1844 (P, type of *P. Goudotiana*).—Antioquia: Páramo de San Felix, *Lehmann 8268* (K). Medellín, *R. B. White* (K).—Caldas: Cerro Tatamá, *Pennell 10394* (N). Cucarronera, New Quindío Trail, *Hazen 9691* (N, Y).—El Cauca: *Dryander 1059* (N). Mt. Santa Ana, *Pennell & Killip 7441* (BM, G, N, Ph, Y). Andes west of Popayán, *Lehmann 1067* (Y), *5916* (B, K). Páramo de Guanacas, *Lehmann 8267* (K). Cerro Munchique, *Stübel 321a* (B); *Von Sneidern 1059* (S), *1060* (S). La Costa, *Von Sneidern 438* (S).—Nariño: Volcán Cumbal, *Karsten* (B, V, type). Pasto, *Triana 2966* (BM, Gen); *Jameson 420* (BM, Bo, Gen, N).

ECUADOR: *Pearce 35* (K). Chonta Cruz, *Poortmann 57*, p.p. (P). Juantu, western slopes of the Andes, *André 4012* (K, type of *Tacsonia hederacea*, Y).—Carchí: Chimbal, *Mexia 7616* (N).—Pichincha: Mt. Corazón, *Sodiro* (N, type of *Tacsonia cyanea*). Atacatzo, *Sodiro* in 1903 (N, type of *Tacsonia cyanea* var. *insignis*). Tandacotó, *Holmgren 476* (S). Páramo de Mojamba, near Quito, *Lehmann 8012* (B, F, K).—Azuay: Between Oña and Cuenca, *Hitchcock 21612* (G, Y).—Loja: Loja, *Humboldt & Bonpland* (B, P, type of *Tacsonia glaberrima* var. *loxensis*). Andes east of Loja, *Lehmann 4841* (B, K, N).

There is much variation in the shape of the leaves in the material here cited, and possibly two species are represented. This was my opinion at the time I proposed a substitute for the specific names *hederacea* and *cyanea* that became invalid in making the transfer from *Tacsonia* to *Passiflora*. The prevailing form in Colombia has larger, deeply lobed, cordate leaves and the tubercles of the corona are so few and so reduced that it is almost a mere ring. *Hitchcock 21612*, from southern Ecuador, is of this sort, however, whereas the type of *P. cumbalensis*, from southern Colombia, agrees with the

greater part of the Ecuadorean material. Should two species be recognized, *P. Goudotiana* would be the correct name for the commoner Colombian plant.

The large, magenta flowers of this plant were a striking feature of the vegetation of the Andes west of Popayán at the time Dr. Pennell and I visited the region.

Father Luis Mille, of Quito, has sent the National Museum a number of specimens of Passifloraceae, including several from Sodiro's herbarium. These, with the careful and complete descriptions of the Ecuadorean tacsonias which Sodiro has published, have been of great assistance in revising this rather difficult group.

Sodiro's variety *insignis*, based on longer peduncles and longer calyx, acute leaf-lobes, and broader petals, merges into the typical plant.

No authenticated specimens of *Tacsonia tungurahuae* have been examined. Sodiro stated that it closely resembled *Tacsonia cyanea*, differing in the bracts being free or more or less united at the base.

LOCAL NAMES: "Curubá," "tacso" (Colombia).

167. **Passiflora macrochlamys** Harms, Bot. Jahrb. 42: 130. 1908.

Plant glabrous nearly throughout; stem subterete; stipules early deciduous; petioles 2 to 3 cm. long, 5-glandular, the glands stipitate, about 1 mm. long, dissitate the entire length of the petiole; leaves 5 to 6 cm. long, 6 to 9 cm. wide, 3-lobed more than half their length (middle lobe broadly ovate, 3 to 3.5 cm. wide at base, abruptly acuminate, the lateral lobes ovate, 1.5 to 2 cm. wide, shorter than and divergent at nearly right angles from middle lobe), subcordate at base, denticulate-serrate, coriaceous or subcoriaceous; peduncles 3 to 5.5 cm. long; bracts 5 to 5.5 cm. long, glabrous without, pubescent within, connate two-thirds their length, the free portions ovate, short-acuminate; calyx tube cylindric, 6 to 6.5 cm. long, glabrous; sepals oblong, 3.5 to 4 cm. long, 1 to 1.3 cm. wide, obtuse, aristulate just below apex; petals subequal to sepals; corona minutely tuberculate; ovary ellipsoidal, glabrous.

TYPE LOCALITY: Monzón, Peru.

DISTRIBUTION: Known only from the type locality, in the mountains of central Peru.

PERU: *Ruiz & Pavón* (P).—Huánuco: Monzón, 2,000 to 2,500 meters, *Weberbauer 3541* (B, type, Gen).

As noted by Harms, the leaves of this species have much the general outline of the leaves of *P. cumbalensis*. The involucre is

much larger, however, the petiolar glands are more numerous and are borne all along the petiole, and the calyx tube is much shorter. The color of the flower is not stated.

168. **Passiflora Schlimiana** Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 130. 1873.

Stem terete, glabrous; stipules subreniform, about 2 cm. long and 1 cm. wide, glandular-serrate, coriaceous, glabrous above, villosulous beneath; petioles 2 to 2.5 cm. long, 6–8-glandular, the glands stipitate or subsessile; leaves 3-lobed about two-thirds their length, 8 to 9 cm. long, 12 to 15 cm. between apices of lateral lobes (lobes ovate or ovate-lanceolate, up to 4 cm. wide, short-acuminate), cordulate at base, glandular-serrate, subcoriaceous, glabrous above, pilosulous on the nerves and veins beneath; peduncles stout, 4 to 4.5 cm. long; bracts 3.5 to 4 cm. long, united one-half to two-thirds their length, purplish and sparingly pilosulous without, densely white-tomentose within, the free portions broadly ovate, short-acuminate; calyx tube cylindric, 5 to 5.5 cm. long, about 1.5 cm. in diameter at throat, densely cano-tomentose without; sepals oblong, about 3 cm. long and 1.2 cm. wide, obtuse, mucronulate; petals subequal to the sepals; corona 1-ranked, tuberculate; operculum dependent, recurved at margin; ovary ellipsoidal, densely cano-villose.

TYPE LOCALITY: "Prov. de Rio-Hacha, Taquina Arriba, alt. 3,250 to 3,575 m.," Santa Marta Mountains, Colombia.

DISTRIBUTION: Known only from the Santa Marta Mountains, in northeastern Colombia.

COLOMBIA: Magdalena: Taquina Arriba, *Schlim 829* (Gen, type collection). Above San Miguel, at edge of páramo, 3,000 meters, *Seifriz 413* (N). Santa Marta, *Schultze 1295* (B, N).

Triana and Planchon suggest that this may be only a variant of *P. mixta*, noting as differences a much shorter calyx tube and longer petiolar glands. The glands can not be relied upon, as there is wide variation in the length of the glands in *P. mixta*, but the shorter calyx tube and, in addition, the fact that the stem is terete, not angular, indicate that the plants from the Santa Marta mountains, noted for their highly endemic flora, represent a separate species.

169. **Passiflora anastomosans** (Lambert) Killip, Journ. Wash. Acad. Sci. 17: 428. 1927.

Tacsonia anastomosans Lambert ex DC. Prodr. 3: 335. 1828.

Plant essentially glabrous throughout; stem terete or the younger parts subangulate; stipules semi-ovate, about 3 cm. long, 1.3 cm. wide, acute, aristulate, callous-serrate, thick-coriaceous, lustrous above; petioles about 2 cm. long, purplish when dry, stout, 2–4-glandular near apex, the glands subsessile; leaves 7 to 9 cm. along midnerve, 6 to 7 cm. along lateral nerves, 7 to 12 cm. between apices of lateral lobes, 3-lobed about to middle (lobes lanceolate, 2.5 to 3 cm. wide, acutish), rounded or abruptly cuneate at base, callous-serrate, 3–5-nerved, conspicuously reticulate-veined, very smooth and lustrous above, duller beneath, the nerves and veins impressed above; peduncles 2.5 to 3 cm. long, stout, purplish when dry; bracts 6 to 7 cm. long, tomentose within, connate one-half to two-thirds their length, the free portions deltoid, 1.5 to 2 cm. wide, acute; calyx tube cylindric, 8 to 9 cm. long, 0.6 to 1 cm. wide, scarcely enlarged at throat, glabrous; sepals oblong-lanceolate, about 2 cm. long, 1 cm. wide; petals similar to sepals and about two-thirds as long; corona minutely tuberculate; ovary ellipsoidal, glabrous; fruit ovoid-ellipsoidal.

TYPE LOCALITY: Peru.

DISTRIBUTION: Known only from the type specimen.

PERU: Huánuco: Posuso, *Pavón* (BM, type, Bo).

The thick-coriaceous, very shiny leaves at once distinguish this plant from its near relatives. The stipules and the bracts are unusually large.

170. **Passiflora psilantha** (Sodiro) Killip, Journ. Wash. Acad. Sci. 14: 213. 1924.

Tacsonia psilantha Sodiro, Anal. Univ. Quito 18: 417. 1903.

Stem terete or slightly subangular, striate, softly pubescent; stipules subreniform, 8 to 10 mm. long, 5 mm. wide, aristate, glandular-dentate; petioles up to 2.5 cm. long, 8–10-glandular; leaves 6 to 8 cm. long, 7 to 10 cm. wide, 3-lobed to from 1.5 to 2 cm. from the base (lobes oblong-lanceolate, 2 to 3 cm. wide, acuminate, the lateral divergent about 45 degrees from middle lobe), shallowly cordate at base, serrate-dentate, sparsely pilose or glabrate above, softly pubescent beneath, especially on the nerves and veins; peduncles up to 2.5 cm. long; bracts united below middle into a tube about 8 mm. wide, the free portions lanceolate, about 6 mm. wide, acute; flowers pale red or white(?); calyx tube cylindric, 7 to 10 cm. long, slender, 4 to 5 mm. in diameter, glabrous; sepals narrowly oblong, 2.5 to 3 cm. long, 0.4 to 0.5 cm. wide, obtuse, long-awned dorsally just below apex;

petals subequaling the sepals, obtuse; corona minutely tuberculate; operculum dependent, margin recurved; ovary sericeous-tomentose; fruit ovoid, 5 cm. long, 2.5 cm. in diameter, softly pubescent; seeds obovate, 6 mm. long, 4 mm. wide, reticulate, axis slightly curved.

TYPE LOCALITY: "Región interandina," Ecuador.

DISTRIBUTION: Mountains of southern Ecuador.

ECUADOR: *Sodiro* (*Mille 226*, N, type).—Pichincha: Cotocallao, *Mille* in 1922 (N).—Tungurahua: Ambato, 2,400 meters, *Lehmann 109a* (Bo, K, N).—Azuay: Cuenca, *Rose 22827* (N); *Popenoe 1336* (N).

This species is intermediate between *P. mollissima* and *P. tripartita* and may be a hybrid of these two. The leaves resemble those of *P. mollissima*, and the slender flowers and general character of the pubescence suggest *P. tripartita*. The calyx tube and the involucre are, however, much narrower than in either of these species.

171. **Passiflora tripartita** (Juss.) Poir. in Lam. Encycl. Suppl. 2: 843. 1811.

Tacsonia tripartita Juss. Ann. Mus. Hist. Nat. 6: 395. *pl. 60.* 1805.

Stem terete (or the younger portions subangular), pilosulous with grayish, curved hairs; stipules subreniform, 6 to 8 mm. long, 3 to 4 mm. wide, aristate, few-toothed; petioles up to 2.5 cm. long, obscurely 8–12-glandular, the glands sessile, or rarely glandless; leaves 6 to 8 cm. long, 8 to 12 cm. wide (between apices of lateral lobes), 3-lobed to about 1 cm. above base (lobes linear-oblong, up to 2 cm. wide, acuminate, the lateral widely divaricate), truncate or subcordate at base, glandular-serrate, finely and softly grayish-pilosulous on both surfaces, especially on the nerves and veins; peduncles 2.5 to 4 cm. long; bracts 2.5 to 3 cm. long, united one-half to two-thirds their length (free portions lanceolate or ovate-lanceolate, 5 to 6 mm. wide, acute), softly pubescent without, tomentellous within; flowers rose-colored; calyx tube cylindric, 9 to 10 cm. long, about 1 cm. wide, often slightly enlarged toward throat, glabrous; sepals oblong, about 3 cm. long, 0.8 to 1 cm. wide, obtuse, aristate dorsally just below apex; petals subequal to sepals, obtuse; corona reduced to an inconspicuous ring, unevenly crenulate at margin; operculum dependent, recurved at margin, subentire; ovary narrowly ovoid, sericeous-tomentose.

TYPE LOCALITY: Tungurahua, Ecuador.

ILLUSTRATION: Ann. Mus. Hist. Nat. 6: *pl. 60.*

DISTRIBUTION: Mountains of central Ecuador; perhaps also in Peru.

ECUADOR: Pichincha: Quito, *Jameson* in 1859 (Ph).—Tungurahua: Tungurahua, *Bonpland 3199* (B, P, type). Baños, *Popenoe 1284* (N). Ambato, *Pachano 168* (N, Y). Zambiza, *Sodiro* (N).

PERU(?): *Ruiz & Pavón* (BM, Gen).

This species is recognized most readily by its linear-oblong leaf lobes. A different indument further distinguishes the species from *P. mollissima.*

Masters placed this among the tacsonias with nonconnate bracts, citing a single Peruvian plant collected by Pavón. In the Pavón plant seen at Geneva and in the British Museum as well as in the other specimens here listed, the bracts are distinctly connate below the middle.

Except for the Pavón specimen, only material from central Ecuador has been examined. Possibly this is another instance of a plant in the Pavón Herbarium being wrongly attributed to Pavón as collector, and the specimen may actually have come from Ecuador.

172. **Passiflora mollissima** (HBK.) Bailey, Rhodora 18: 156. 1916.

(?)*Passiflora tomentosa* Lam. Encycl. 3: 40. 1789.

Tacsonia mollissima HBK. Nov. Gen. & Sp. 2: 144. 1817.

Murucuja mollissima Spreng. Syst. Veg. 3: 43. 1826.

Tacsonia mixta subsp. *tomentosa* Mast. Trans. Linn. Soc. 27: 629. 1871; in Mart. Fl. Bras. 13, pt. 1: 541. 1872.

(?)*Tacsonia mollissima* var. *glabrescens* Mast. in Mart. Fl. Bras. 13, pt. 1: 541. 1872.

Passiflora tomentosa var. *mollissima* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 131. 1873.

Stem terete, striate, densely and softly yellow-villous; stipules subreniform, 7 to 9 mm. long, 3 to 4 mm. wide, aristate, denticulate or subentire; petioles up to 3 cm. long, canaliculate, bearing on inner margin 8 to 12 sessile glands; leaves 5 to 10 cm. long, 6 to 12 cm. wide, 3-lobed to about two-thirds their length (lobes ovate or ovate-oblong, 3 to 4 cm. wide, acute, the sinuses acute), subcordate, sharply serrate-dentate, membranous, softly pubescent above, grayish- or yellowish-tomentose beneath; peduncles 2 to 6 cm. long; bracts united one-half to one-third their length, 2.5 to 3 cm. long, acute, softly tomentose, the free portions entire at margin; calyx tube 6.5 to 8 cm. long, about 1 cm. in diameter, usually glabrous, rarely pubescent, olive-green, often red-tinged without, white within; sepals oblong, 2.5 to 3.5 cm. long, 1 to 1.5 cm. wide, obtuse, aristulate below apex; petals sub-

equal to the sepals, obtuse, pink; corona reduced to a purple band with a few pinkish tubercles or crenulations; operculum white, dependent, recurved at margin, subentire; ovary oblong, sericeous-tomentose; fruit oblong-ovoid, 6 to 7 cm. long, 3 to 3.5 cm. in diameter, yellowish, softly pubescent; seeds broadly obovate, to 6 cm. long, 5 cm. wide, asymmetrical, reticulate.

TYPE LOCALITY: Monserrate, near Bogotá, Colombia.

ILLUSTRATIONS: Cav. Diss. 10: *pl. 275, 276;* Bot. Mag. 71: *pl. 4187;* Bot. Reg. 32: *pl. 11;* Fl. des Serres 2: *pl. 14;* Paxton, Mag. 13: *pl. 25;* Contr. U. S. Nat. Herb. 24: *pl. 44;* Mutis, Icon. Pl. Ined. 26: *pl. 39.*

DISTRIBUTION: Western Venezuela and the Eastern Cordillera of Colombia to southeastern Peru and western Bolivia, between 2,000 and 3,200 meters altitude, rarely at lower or higher elevations, often in cultivation; also cultivated in Europe, Mexico, and southern California.

CALIFORNIA: Pacific Beach, cultivated, *Kumm* in 1930 (N).

MEXICO: Puebla: Jalapasco, cultivated, *Seler 3579* (B).—Mexico: Nanchititla, *Hinton 3608* (N).

VENEZUELA: Mérida: San Rafael de Mucuchías, *Pittier 12904* (Gen, N, Y); *Jahn 791* (N). Moconoque, *Pittier 13234* (Gen, N, Y).

COLOMBIA: Norte de Santander: Mutiscua, *Killip & Smith 19681* (A, G, N, Y). Pamplona, *Archer 3220* (N).—Santander: Slope of Páramo de Santurbán, near Tona, *Killip & Smith 19520* (A, G, N, Y).—Cundinamarca: Bogotá, *Humboldt & Bonpland 1767* (type; B, P); *Killip & Ariste Joseph (Killip 11925;* N); *Ariste Joseph B120* (Bog, N); *Karsten* (V); *Goudot* (P); *Lehmann 2489* (B, Bo); *Triana 2961* (BM, Brux, P, Y); *Holton 708* (Y); *Guevara A64* (N). Zipacón, *Popenoe 1060* (N), *1139* (N). Tequendama, *Popenoe 1120* (N). Chipaqué, *Ariste Joseph B42* (N).—Meta: Isla Fuquene, *Pérez 92* (N).—Huila: Balsillas, cultivated, *Pennell 691* (N, Y).—El Cauca: Popayán, *Lehmann 5422* (B, K, N).

ECUADOR: *Couthouy* in 1855 (G, Y).—Imbabura: Ibarra, *Mexia 7390* (N).—Pichincha: Quito, *Sodiro (Mille 225;* N). Cotocallao, *Mille* in 1923 (N).—Tungurahua: Ambato, *Rose 22343* (G, N), *23776* (N); *Popenoe 1223* (N).—Chimborazo: "Interandean highland," *Rimbach 151* (N).

PERU: Huánuco: Huánuco, *Macbride & Featherstone 2074* (F, N). Pampayacu, *Kanehira 265* (G).—Junín: Tarma, *Killip & Smith*

21868 (F, N, Y), *21942* (F, N, Y). Ocopa, *Killip & Smith 22011* (F, N, Y). Carpapata, *Killip & Smith 24481* (N, Y). Huancayo, *Vallerieste* (N).—Ayacucho: Ccarrapa, *Killip & Smith 23236* (F, N, Y).—Cuzco: Ollantaitambo, *Cook & Gilbert 270* (N). Guispicanchi, *Herrera 696* (N). Paucarcoto, *Bues* (*Herrera 2127*, N; *2128*, N). Cuzco, *Herrera 2943* (B); *Popenoe 1355* (N).—Arequipa: Arequipa, *Rose 18979* (N, Y).

BOLIVIA: Chivesivi, *Pentland* (P).—La Paz: Soratá, cultivated, *Mandon 615*, in part (BM, Gen, P, S, V). La Paz, cultivated, *Weddell* (P); *D'Orbigny* (P); *Buchtien 4650* (N).

This species is extensively cultivated in the Andes under the name *curubá*, both for ornamental purposes and for its fruit. It doubtless hybridizes freely with other tacsonias. In its typical form it is most readily recognized by the terete stems, densely clothed with a short, soft, yellowish indument, and a glabrous calyx tube. Plants with a pubescent calyx tube may well be hybrids of this species and *P. mixta*. Among the specimens cited above, *Lehmann 5422* and *Mexia 7390* are almost certainly hybrids of *P. mollissima* and *P. mixta*.

Passiflora tomentosa may be identical with *P. mollissima*, in which case that name must be used for this species. However, the type specimen of *P. tomentosa*, in the Jussieu Herbarium, which is exactly matched by a Mathews specimen in the British Museum, suggests a plant different from that commonly passing as *P. mollissima*. The leaves are shaped more like those of *P. ampullacea* and their dark brown indument also is like that of *P. ampullacea*. The stipules, however, are of the broad, foliaceous type of *P. mollissima* and its allies. It is possible that the type of *P. tomentosa* was a hybrid between *P. ampullacea* and perhaps *P. mollissima;* in view of this uncertainty I hesitate to supplant the well known name *P. mollissima* by that of *P. tomentosa* (see Masters, Journ. Linn. Soc. 20: 30. 1883).

Several specimens at Paris and Madrid referred by early authors to "*P. tomentosa*" actually represent *P. mixta*. One of these at Madrid is evidently the original of one of Ruiz and Pavón's unpublished plates (Fl. Peruv. Chil. 5 [ined.]: *pl. 538*), which bears the specific name "*tomentosa*," perhaps proposed independently of Lamarck.

LOCAL NAMES: "Granadilla cimarrona" (Mexico); "curubá" (Colombia); "tacso," "tintin," "tumbo," "trompos" (Peru).

173. **Passiflora mixta** L. f. Suppl. 408. 1781.

Passiflora longiflora Lam. Encycl. 3: 39. 1789.

Passiflora Tacso Cav. Diss. 10: 451. *pl. 277*. 1790.

Tacsonia mixta Juss. Ann. Mus. Hist. Nat. 6: 394. 1805.

Tacsonia longiflora Pers. Syn. Pl. 2: 223. 1807.

Tacsonia Tacso Pers. Syn. Pl. 2: 223. 1807.

Tacsonia speciosa HBK. Nov. Gen. & Sp. 2: 43. 1817.

Murucuja speciosa Spreng. Syst. Veg. 3: 43. 1826.

Tacsonia mixta var. *longiflora* DC. Prodr. 3: 335. 1828.

Tacsonia quitensis Benth. Pl. Hartw. 184. 1845.

Distephana quitensis M. Roemer, Fam. Nat. Syn. 2: 200. 1846.

Tacsonia serrata Karst. Linnaea 30: 160. 1859 or 1860.

Tacsonia mixta subsp. *tomentosa* var. *speciosa* Mast. Trans. Linn. Soc. 27: 629. 1871; in Mart. Fl. Bras. 13, pt. 1: 541. 1872.

Tacsonia mixta subsp. *quitensis* Mast. Trans. Linn. Soc. 27: 629. 1871; in Mart. Fl. Bras. 13, pt. 1: 542. 1872.

Passiflora mixta var. *subquinqueloba* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 129. 1873.

Tacsonia urceolata Mast. in Mart. Fl. Bras. 13, pt. 1: 539. 1872.

Tacsonia bicoronata Mast. in Mart. Fl. Bras. 13, pt. 1: 541. 1872.

Tacsonia mixta subsp. *normalis* Mast. in Mart. Fl. Bras. 13, pt. 1: 541. 1872.

Tacsonia mixta var. *bicoronata* Mast. Journ. Linn. Soc. 20: 29. 1883.

Passiflora urceolata Killip, Journ. Wash. Acad. Sci. 17: 428. 1927.

Stem angulate, glabrous or grayish-pubescent; stipules subreniform, 1 to 2 cm. long, 0.5 to 1 cm. wide, cuspidate, callous-dentate or callous-serrate, the teeth unequal; petioles up to 3 cm. long, 4–8-glandular, the glands stipitate or subsessile; leaves 5 to 10 cm. long, 6 to 13 cm. (or extremes up to 17 cm.) wide, 3-lobed to or to slightly below middle (lobes ovate-oblong, 2 to 6 cm. wide, acute or abruptly acuminate, the lateral lobes divaricate from the midlobe at about 45 degrees, occasionally at a greater angle, rarely bilobate), truncate or subcordate at base, coarsely or finely callous-serrate, coriaceous, glabrous and impressed-nerved above, glabrous, grayish-pubescent, or tomentose beneath; peduncles stout, up to 6 cm. long; bracts united one-half to three-quarters their length into a tubulate-campanulate or nearly cylindric involucre 2 to 5 cm. long (free portions ovate-lanceolate, acute, entire, one fissure usually much deeper than the others), reddish, bright yellow-green when dry, glabrous to densely tomentose without, tomentose within; calyx tube cylindric, 8 to 11 cm. long, about 1 cm. wide, slightly enlarged at

throat, glabrous or pubescent and yellow-green to orange-red without, glabrous and cream-colored within; sepals oblong, 3 to 4 cm. long, about 1.5 cm. wide, obtuse, aristate on outside just below apex (awn 1 to 4 mm. long), yellow-green and pink or white at margin on outside, pink to orange-red and white at base on inside; petals subequal to sepals, obtuse, pink to orange-red, white at base; corona tuberculate (tubercles up to 1 mm. long, in 1 series or sometimes in 2, the inner tubercles shorter), deep lavender or purple; operculum 2 to 3 mm. long, dependent, recurved at the crenulate margin; ovary ellipsoidal, glabrous or white-tomentose; fruit ovoid, 4.5 to 6 cm. long, 2 to 2.5 cm. in diameter, glabrous or pubescent; seeds obovoid, 4 to 5 mm. long, 3 to 4 mm. wide, reticulate, the axis straight.

TYPE LOCALITY: Colombia (type collected by Mutis).

ILLUSTRATIONS: Cav. Diss. 10: *pl. 277;* J. E. Sm. Pl. Icon. Ined. 1: *pl. 25;* Mart. Fl. Bras. 13, pt. 1: *pl. 128, f. 1;* Bot. Mag. 96: *pl. 5876;* Mutis, Icon. Pl. Ined. 26: *pl. 40.*

DISTRIBUTION: Central Venezuela through Colombia and Ecuador to southern Peru and central Bolivia, from 2,500 to 3,600 meters altitude.

VENEZUELA: *Linden 287* (Gen).—Federal District: Caracas, *Gollmer* in 1856 (B).—Aragua: Colonia Tovar, *Karsten* (B, V, distributed as *Tacsonia splendens* Hort.); *Fendler 470* (Bo, G, Gen, Mo, P, Y); *Pittier 9370* (G, N); *Moritz 1322* (B, BM, N); *Jahn 1204* (N). —Trujillo: Trujillo, *Funck & Schlim 789* (BM, Gen, P).—Mérida: Silva Tafayés, *Jahn 550* (N). Mucurubá, *Gehriger 263* (Gen, N).

COLOMBIA: *Lehmann IX* (Bo, N).—Norte de Santander: Ocaña, *Schlim 418* (Bo, Brux, Gen, K, type of *Tacsonia bicoronata,* P). San Pedro, *Kalbreyer 486* (B, K). Between Mutiscua and Pamplona, *Killip & Smith 19685* (A, G, N, Y), *19712* (A, G, N, Y).—Santander: Las Vegas, *Killip & Smith 15576* (A, G, N, Y). La Baja, *Killip & Smith 17148* (A, G, N, Y). Vetas, *Killip & Smith 17235* (A, G, N, Y), *17373* (A, N), *17920* (G, N, Y). Slope of Páramo Rico, *Killip & Smith 17825* (A, G, N, V, Y), *17831* (N), *18501* (A, G, N, Y). Páramo de Las Puentes, *Killip & Smith 18210* (A, G, N, Y).—Cundinamarca: Bogotá, *Humboldt & Bonpland 1768* (B, type of *Tacsonia speciosa*); *Karsten* (V, type of *Tacsonia serrata*); *Triana 2967* (BM, Brux, Gen, N, P, Y); *Dawe 305* (N); *Goudot* (P); *Schultze 35* (B). Sibaté, *Popenoe 1120a* (N), *1158* (N). Zipacón, *Popenoe 1140* (N, Y). Nemocón, *Popenoe 1081* (N), *1083* (N, Y). Tequendama, *Ariste Joseph B112* (N). Chapinero, *Killip 9720* (N). Fontibón, *Lehmann*

2624, p.p. (Bo, N), *6440* (B, K). San Cristóbal, *Instituto de La Salle* (Bog, G).—Boyacá: Duitama, *Toro 9* (Y), *10* (Y).—Tolima: Quindío Trail, *Killip & Hazen 9510* (G, N, Y), *9535* (G, N, Ph); *Karsten* (V). New Quindío Trail, *Hazen 9671* (G, N, Ph, Y), *9680* (G, N, Y); *Killip 9755* (G, N, Ph, Y). El Salto, *Cuatrecasas 3242* (Ma).—Antioquia: Santa Rosa, *Lehmann X* (B, Bo, N).—Caldas: Quindío Trail, *Killip & Hazen 9149* (G, Gen, N, P, Ph, Y), *9163* (N). Salento, *Pennell 9370* (G, N).—El Valle: Páramo de Buena Vista, *Pittier 1509* (N).—El Cauca: Paletará, *Pennell 7114* (G, N). Mt. Puracé, *Pennell & Killip 6615* (G, N, Ph, Y); *Killip 6572* (G, N, Ph, Y), *6741* (G, N, Y). Pitayó, *Pittier 1424* (N). Páramo de Guanacas, *Lehmann K20* (F, K). Sotará, *Lehmann 2840* (Bo).—Nariño: Yacuanquer, *Lehmann 371* (Bo, N). Pasto, *Lehmann 102* (K).

COLOMBIA, ECUADOR, or PERU: *Lobb 121* (K, type of *Tacsonia urceolata*, V).

ECUADOR: "Andes," *Spruce 5493* (BM, Gen, Y); *Bourcier* in 1851 (P). San Miguel, *Schimpff 261* (Gen).—Carchí: Tulcán, *Hitchcock 21000* (G, N).—Pichincha: Mt. Pichincha, *Heilborn 132* (Gen, S); *Jameson* in 1864 (K, N); *Karsten* (V); *Sodiro* (*Mille 224;* N); *Firmín 26* (N). Pifo, *Mille 133* (N). Mt. Corazón, *Sodiro* (*Mille 228;* N), *108* (N); *Lehmann 370* (BM, Bo). Quito, *Lehmann 104* (Bo); cultivated, *Hartweg 1017* (Gen), *1019* (BM, type of *Tacsonia quitensis*); *Johansen 7* (N). Ungui, *Firmín 653* (F, N). Antisanilla, *Anthony & Tate 350* (N).—León: Cotopaxi, *Lehmann 53* (Bo), *418* (V).—Tungurahua: Baños, *Holmgren 392* (S). Casatagua, *Pachano 28* (N). Tungurahua, *Sodiro* in 1901 (N).—Chimborazo: "Eastern Cordillera," *Rimbach 152* (N).—Azuay: Cuenca, *Lehmann 6581* (B), *8266* (B).

PERU: *Jussieu* (P, type of *P. longiflora;* also type of *P. Tacso*); *Dombey 746* (P); *Née* (Ma); *Haenke 1957* (Pr), *2040* (Pr).—Huánuco: Mito, *Macbride & Featherstone 1615* (F). Muña, *Macbride 4315* (F, N). Pillao, *Ruiz & Pavón* (Bo, Brux, Gen, Ma, P).—Cuzco: Lucumayo Valley, *Cook & Gilbert 1348* (N). Panticalla Pass, *Cook & Gilbert 1824* (N). Urubamba Valley, *Cook & Gilbert 828* (N). Paucartambo, *Herrera 2999* (N).—Ayacucho: Tambo, *Weberbauer 5621* (B).—Puno: Sandía, *Weberbauer 872* (B).

BOLIVIA: Teneria, Aracatal, *Herzog 2489* (S, V).—La Paz: Soratá, *Mandon 614* (BM, Bo, Gen, P, V), *615*, in part (Bo, P, S).—Cochabamba: Ayopaya, Sailapata, *Cárdenas 3185* (N).

From examination of the large number of specimens here cited, as well as from field observations, the writer agrees with Triana and

Planchon and Harms that it is impossible to recognize as distinct the many species that have been segregated from *P. mixta* L. f. The bases for these segregations have been, in general, the degree of pubescence on the stem, under surface of the leaves, bracts, and calyx tube; the character of the petiolar glands—whether they are sessile or stipitate; and the shape of the involucre. Masters grouped these segregates into subspecies and varieties of *"Tacsonia mixta,"* but the characters which he assigned to them do not appear to be constant, and it seems impossible to correlate any of the distinguishing marks. Doubtless this species hybridizes freely in nature with such species as *P. mollissima* and *P. cumbalensis.*

In the great majority of the specimens examined the stems are distinctly 4–5-angular; in a few specimens, however, the older portions are subterete, as in the type of *Tacsonia speciosa* HBK., at Paris. The involucre varies greatly in length and in the degree to which it is connate.

Some of the variations in the matter of pubescence may be noted:

(1) Leaves, calyx tube, and ovary glabrous: *Mandon 614, Cárdenas 3185,* Bolivia; *Killip 6572, Lehmann IX,* Colombia; *Lobb 121,* Colombia(?). *P. longiflora, P. Tacso, P. mixta* var. *subquinqueloba.*

(2) Leaves glabrous, calyx tube and ovary pubescent: *Schlim 418, Killip & Smith 18210, Triana 2967,* Colombia; *Cook & Gilbert 828,* Peru. *Tacsonia speciosa, Passiflora bicoronata.*

(3) Under surface of leaves, calyx tube, and ovary pubescent: *Killip & Smith 19685, Lehmann 2624,* Colombia; *Jahn 550,* Venezuela; *Sodiro 224,* Ecuador. *Tacsonia quitensis.*

(4) A variant in Ecuador with dense, white wool on the calyx tube and under surface of the leaves is perhaps sufficiently well marked to merit varietal rank.

Tacsonia urceolata was based upon *Lobb 121,* said to have been collected in Colombia. The only specimen now at Kew of this collection consists of the tip of the stem, bearing a few leaves and flowers, and is mounted on a sheet with *P. cumbalensis.* No stipules are present, though Masters describes them as linear and caducous, the species therefore being placed by him between *Tacsonia ampullacea* and *T. Matthewsii.* At Vienna there is a specimen bearing a printed label reading "Peru, leg. Lobb" which is a perfect match for the Kew specimen and which, indeed, appears to be the contiguous part of it. The Vienna specimen bears the subreniform, cuspidate stipules which characterize most tacsonias, and, in the present rather

broad interpretation of *P. mixta*, I fail to see why it should not be included.

The presence of a second series of corona filaments, the basis of *Tacsonia bicoronata*, occurs in many of the specimens cited above.

173a. **Passiflora mixta** var. **eriantha** (Benth.) Killip, comb. nov.

Tacsonia eriantha Benth. Pl. Hartw. 183. 1845.

Tacsonia mixta subsp. *quitensis* var. *eriantha* Mast. Trans. Linn. Soc. 27: 629. 1871; in Mart. Fl. Bras. 13, pt. 1: 542. 1872.

Stem glabrous; leaves densely white- or yellowish-lanate between the nerves and veins beneath; bracts white-lanate, at length glabrate; calyx tube grayish-lanate.

TYPE LOCALITY: Quito, Ecuador, where cultivated.

ILLUSTRATION: Bot. Mag. 95: *pl. 5750.*

DISTRIBUTION: Mountains of Ecuador, about 3,000 meters altitude.

ECUADOR: Pichincha: Quito, cultivated, *Hartweg 1016* (BM, type of *Tacsonia eriantha*, K). Mt. Pichincha, *Jameson* (K); *Holmgren 666* (S). Cotocallao, *Holmgren 974* (S). Palalagua, *Sodiro 567* (N). Calacali, *Mille 136* (N).—Chimborazo: Clurite Loja, *Lehmann 108* (Bo).—Loja: Loja, *Popenoe 1316* (N); *Poortmann 57*, p.p. (P); *Lehmann 4842* (B, K). Zaraguro, *Lehmann 8013* (B, K).

LOCAL NAMES of *P. mixta:* "Tacso," "curubá" (Venezuela, Colombia); "curubita," "curubita de indio" (Bogotá); "tumbo," "monte-tumbo" (Peru); "xamppajrrai" (Quechua, Peru); "guyán" (Ecuador).

The fruit is edible, though not esteemed so highly as that of *P. mollissima.*

174. **Passiflora mesadenia** Killip, Journ. Wash. Acad. Sci. 17: 427. 1927.

Stem subquadrangular, striate, pilosulous; stipules subreniform, 1.5 to 2 cm. long, 0.5 to 0.8 cm. wide, aristate, glandular-dentate near base; petioles up to 2 cm. long, biglandular at middle, occasionally with an additional gland above or below middle, short-stipitate, 1.5 to 2 mm. long, 1 to 1.5 mm. in diameter; leaves 4 to 6 cm. long, 6 to 8 cm. wide, 3-lobed to middle (lobes acute, the middle lobe oblong-lanceolate, the lateral lobes ovate-lanceolate), subauriculate or cordulate at base (basal lobes slightly overlapping), shallowly and irregularly dentate-serrate, reticulate-veined (nerves and veins

impressed above), subcoriaceous, dark green and glabrous above, paler and pilosulous or densely villous beneath; peduncles 4 to 5.5 cm. long, subquadrangular, stout; bracts 4 to 5 cm. long, acute, united about half their length (free portions entire at margin), glabrous; calyx tube cylindric, 7 to 8 cm. long, about 1 cm. in diameter, pink without, glabrous; sepals oblong, about 4 cm. long, 1 cm. wide, obtuse, concave toward apex, short-awned on outside just below apex, pink without, white within; petals oblong-spatulate, as long as the sepals, about 1.5 cm. wide, obtuse, white; corona reduced to a row of small, thick tubercles about 1 mm. long; operculum 5 to 6 mm. long, the margin recurved, denticulate; limen closely surrounding base of gynophore, lobulate; ovary narrowly ovoid, glabrous, pruinose.

TYPE LOCALITY: Río Chinchao, Peru.

DISTRIBUTION: Mountains of central Peru.

PERU: Huánuco: Villcabamba, Río Chinchao, 1,800 meters, *Macbride 4960* (F, type). Pampayacu, *Kanehira 265a* (G); *Sawada P1* (N).

This species bears a general resemblance to *P. macrochlamys*, but is at once distinguished by the size and shape of the petiolar glands. The stipules are much smaller and the calyx tube longer. The very large petiolar glands also differentiate it from the many forms of *P. mixta*.

Subgenus XIV. GRANADILLASTRUM

175. **Passiflora semiciliosa** Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 145. 1873.

Plant glabrous throughout; stem terete; stipules semi-ovate, up to 4 cm. long, 2 cm. wide, oblique at base, sharply serrate; petioles bearing several elongate (about 3 mm.), filiform glands; leaves 3-lobed to about 2 cm. from base (lobes linear- or ovate-lanceolate, 6 to 8 cm. long, 1.5 to 2 cm. wide, gradually acuminate, the middle lobe serrate-ciliate, the lateral lobes serrate-ciliate at inner margins); peduncles 20 to 25 cm. long, arcuate above; bracts oblong, about 1.5 cm. long, 1 cm. wide, free to base, glandular-serrate; calyx tube urceolate-tubular, about 1.5 cm. long, 0.8 cm. wide; sepals linear-lanceolate, about 4 cm. long, 0.6 cm. wide, obtuse, aristate dorsally just below apex; petals subequal to sepals; corona filamentose, the filaments 1 to 1.2 cm. long, in 2 series at throat of tube, the third about halfway down; operculum dependent, the margin recurved, fimbriate.

TYPE LOCALITY: La Cruz, Ocaña, Colombia.

DISTRIBUTION: Eastern Cordillera of Colombia and the Santa Marta region; perhaps also in north-central Venezuela.

VENEZUELA: Aragua: Colonia Tovar, *Sydow 328* (N).

COLOMBIA: Magdalena: Río Frío, *Kalbreyer 1960* (B).—Norte de Santander: La Cruz, *Schlim* (K, type collection).—Santander: Paramito, *Kalbreyer 752* (B).

This is the type species of the subgenus *Granadillastrum*. The Sydow specimen, from Venezuela, is without flowers and may belong to some other species. Among the species of *Granadillastrum*, all of which are characterized by the calyx tube being *shorter* than the sepals, *P. semiciliosa* is readily distinguished by the deep lobation of the leaves, the lobes being very narrow. The vegetative parts of *P. semiciliosa* have a close resemblance to *P. gritensis*, of *Granadilla*.

176. **Passiflora manicata** (Juss.) Pers. Syn. Pl. 2: 221. 1807.

Tacsonia manicata Juss. Ann. Mus. Hist. Nat. 6: 393. *pl. 59, f. 2.* 1805.

Passiflora manicata var. *communis* HBK. Nov. Gen. & Sp. 2: 139. 1817.

Passiflora manicata var. *macrophylla* HBK. Nov. Gen. & Sp. 2: 139. 1817.

Tacsonia manicata var. *macrophylla* M. Roemer, Fam. Nat. Syn. 2: 193. 1846.

(?)*Passiflora meridensis* Karst. Linnaea 30: 165. 1859 or 1860.

Passiflora rhodantha Harms, Bot. Jahrb. 21: 324. 1895.

Stem stout, angulate, densely strigillose or glabrate; stipules semi-ovate (attached at middle of side), 1.5 to 2 cm. long, 0.8 to 1 cm. wide, coarsely sharp-dentate; petioles up to 5 cm. long, 4–10-glandular, the glands stipitate or subsessile; leaves 4 to 8 cm. long, 5 to 9 cm. wide (or the lower up to 10 cm. long, 14 cm. wide), 3-lobed to or occasionally to slightly below middle (lobes ovate or oblong-ovate, 2 to 5 cm. wide, obtuse or acutish, the middle lobe usually produced), rounded or subcordate at base, callous-serrulate or serrate, glabrous or pilosulous above, tomentose beneath; peduncles up to 7 cm. long; bracts free or united toward base, ovate, 2 to 3 cm. long, 1 to 1.5 cm. wide, acute, entire or serrulate, tomentellous without, tomentellous or rarely glabrescent within; calyx tube urceolate-campanulate, 1.5 to 2 cm. long, 0.8 to 1 cm. in diameter, green without, light green or white within, sulcate at base; sepals oblong-lanceolate, 3 to 3.5 cm.

long, 6 to 7 mm. wide, obtuse, awned dorsally just below apex, green, pink-tinged without, scarlet within; petals oblong, obtuse, scarlet; corona in 3 or 4 series, the outer 2 or 3 filamentose, the filaments 2 to 4 mm. long, blue, the next series tuberculate, 0.5 mm. long, the innermost series borne about 4 mm. below throat, white, lacerately cleft into narrowly linear divisions; operculum about 7 mm. long, white, dependent, the margin retrorse, minutely denticulate; limen membranous, erect, 3 to 4 mm. high, lobulate; ovary obovoid, glabrous; fruit ovoid or subspherical, 3.5 to 5 cm. long, 2.5 to 3.5 cm. wide, dark green, glabrous and shining; seeds ovate, 5 mm. long, 3 mm. wide, finely reticulate, black when ripe.

TYPE LOCALITY: Loja, Ecuador.

ILLUSTRATIONS: Gard. & For. 7: *pl. 265, 267;* Ann. Mus. Hist. Nat. 6: *pl. 59, f. 2;* Paxton, Fl. Gard. 1: *pl. 26;* Bailey, Stand. Cycl. Hort. 2486. *f. 2775;* Mutis, Icon. Pl. Ined. 26: *pl. 35a.*

DISTRIBUTION: Western Venezuela, Eastern and Central Cordilleras of Colombia to northern Peru, 1,500 to 2,500 meters altitude; sometimes cultivated.

VENEZUELA: Mérida: Bailadores, *Funck & Schlim 1254* (Bo, Gen). Páramo de San José, *Jahn 966* (N).

COLOMBIA: "Eastern Cordillera," *Dawe 355* (N).—Norte de Santander: Pica-Pica Valley, north of Toledo, *Killip & Smith 20022* (A, G, N, Y). Labateca, *Killip & Smith 20547* (A, G, N, Y).—Cundinamarca: Ubaqué, *Holton 705* (Y). Fusagasugá, *Holton* in 1853 (Y).—Boyacá: Leiva, *Dawe* in 1919 (K).—Tolima: Quindío Mountains, *Humboldt & Bonpland* (type of *P. manicata* var. *macrophylla*, B, P). Gallegos, Quindío Trail, *Killip & Hazen 9551* (N), *9557* (G, N). San Miguel, New Quindío Trail, *Hazen 9665* (G, N), *9667* (G, N, Ph, Y); *Killip 9742* (N, Y). El Moral, *Goudot* (P); *Triana* (BM, Brux, Gen). Mariquita, *Triana* (N, P, Y).—Caldas: Salento, *Pennell, Killip & Hazen 9094* (G, N, P, Ph, Y).—El Cauca: *Stübel 159* (B). Jambaló, *Pittier 1445* (N). San Isidro, *Pennell & Killip 6421* (G, N). Coconuco, *Von Sneidern 1112* (S).—Nariño: Pasto, *Triana 2962* (BM); *Werner 15* (B).

ECUADOR: *Spruce 5171* (BM, Gen, V, Y); *Bourcier* in 1851 (P); *Lehmann 107* (Bo).—Imbabura: Ibarra, *Humboldt & Bonpland* (B, P, type of *Tacsonia manicata*); *Stübel 131a* (B, type of *P. rhodantha*), *131b* (B); *Popenoe 1250* (N); *Lehmann 588* (Bo); *Mexia 7360* (N). Otavalo, *Hitchcock 20815* (G, N).—Pichincha: Quito, *Sodiro* (*Mille 235*, N); *Holmgren 735* (S). Guápulo, *Benoist 2159* (P).

Tumbaco, *Mille 134* (N).—Tungurahua: Baños, *Holmgren 429* (BM, Gen, S); *Schimpff 181* (Gen).—Chimborazo: Huigra, *Rose 22133* (G, N, Y); *Hitchcock 20631* (G, N). Guaranda, *Rémy* (P).—Azuay: Chagal, near Cuenca, *Lehmann 4565* (B, N).—Loja: Loja, *Humboldt & Bonpland 3394* (type of *P. manicata* var. *communis*, B, BW, P); *Rose 23286* (N, Y). Mt. Saraguru, near Loja, *Humboldt & Bonpland 3395* (B, P).

PERU: Cajamarca: Hacienda La Tajona, *Weberbauer 4051* (B, Gen).

This species is intermediate between the tacsonias and granadillas, and has been placed at various positions in taxonomic treatments of the family. Jussieu, De Candolle, Don, and Masters considered it *Tacsonia;* Kunth records it as *Passiflora.* Triana and Planchon place it next to *P. pinnatistipula* in the section *Poggendorffia* of the subgenus *Tacsonia.* Harms creates for it a subsection, *Manicatae,* in his section *Tacsonia.* The calyx tube, though not nearly so long as in the true tacsonias, is longer than in *Granadilla;* the dependent operculum, with a recurved margin, is characteristic of *Tacsonia;* the corona is in several ranks, the filaments of the various ranks approximating in shape and proportionate length similar processes in *Granadilla.* The vegetative characters of the plant, particularly the stipules, bracts, and petiolar glands, are suggestive of *Tacsonia* rather than *Granadilla.* In the field, however, one associates this plant with *Granadilla* rather than with *Tacsonia.*

Probably this species is best placed in the subgenus *Granadillastrum.* This group, described originally by Triana and Planchon as a section of their subgenus *Tacsonia,* and recently raised by Harms to equal rank with *Tacsonia,* is clearly a connecting link between true *Tacsonia* and *Granadilla.* The corona is filamentose and in more than two ranks and the calyx tube is shorter than the sepals. In the six species here placed in *Granadillastrum* the innermost filaments are longer than the intermediate ones.

The specimens cited above lack uniformity in three particulars: in some the bracts are free to the base, while in others they are united nearly to the middle; the petiolar glands are long-stipitate in some, nearly sessile in others; the ovary is glabrous or tomentose. It seems impossible, however, to correlate these characters, and to recognize any well defined species or varieties.

177. **Passiflora antioquiensis** Karst. Linnaea 30: 162. 1859 or 1860.

Passiflora antioquiensis var. *trisecta* Karst. Linnaea 30: 162. 1859–60.

Tacsonia Volxemi Funck, Journ. Hort. Prat. Belg. 5: 25. 1861.

Tacsonia Van-Volxemii Lemaire, Ill. Hort. 10: *pl. 381*. 1863.

Passiflora Van Volxemii Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 141. 1893.

Stem terete (or the younger parts subangulate), rufo-hirtellous to rufo-tomentose; stipules subulate, 5 to 7 mm. long; petioles up to 4 cm. long, stout, obscurely glandular; leaves dimorphic, unlobed, ovate, ovate-lanceolate, or lanceolate, 7 to 15 cm. long, 3.5 to 8 cm. wide, or 3-lobed to within 1 cm. of base (lobes lanceolate or elliptic-lanceolate, up to 3 cm. wide), rounded or subcordate at base, unevenly and sharply serrate, puberulent on the nerves and veins above, densely pilose or strigillose on the nerves and veins and slightly tomentellous elsewhere beneath (or both surfaces glabrous?); flowers rose-red; calyx tube cylindric, 2.5 to 4 cm. long, ventricose at base, glabrous; sepals oblong-lanceolate, 5 to 6.5 cm. long, 1.5 to 2.5 cm. wide, obtuse, short-awned; petals similar to the sepals, obtuse, clawed at base; corona in 3 series, the outer 2 about 2 mm. apart, the outermost minutely tuberculate, the inner varying (often in the same flower) from minutely tuberculate (tubercles 0.5 mm. long) to filamentose (filaments slender, 5 mm. long), the third series situated about 1 cm. above base of tube, filamentose, the filaments 4 to 6 mm. long; operculum borne midway between preceding and base of tube, membranous, deflexed, the margin recurved, minutely denticulate or nearly entire; ovary narrowly ellipsoidal, glabrous or puberulent.

TYPE LOCALITY: Department of Antioquia, Colombia, cultivated at Bogotá.

ILLUSTRATIONS: Journ. Hort. Prat. Belg. 5: *pl. 3;* Lemaire, Ill. Hort. 10: *pl. 381;* Bot. Mag. 92: *pl. 5571;* Karst. Fl. Columb. 1: *pl. 71;* Bailey, Cycl. Amer. Hort. 1765. *f. 2457;* Stand. Cycl. Hort. 2485. *f. 2773*.

DISTRIBUTION: Mountains of Colombia, 2,000 to 3,000 meters altitude.

COLOMBIA: Cundinamarca: Bogotá, cultivated, originally from the Department of Antioquia, *Karsten* (B, V, type); *Triana 2971* (BM, Gen).—Boyacá: Duitama, *Dawe* in 1919 (K). Cultivated, *Pérez 3028* (HNC).—Antioquia: La Sierra, near Medellín, *Archer 1109* (N).—Caldas: Río San Rafael, below Cerro Tatamá, *Pennell 10390* (G, N).—Tolima: Quindío Trail, *Goudot* (K).—El Cauca: San José, west of Popayán, *Pennell 7568* (G, N, Ph, Y), *7626* (G, N, Ph, Y).

This species is well known in horticulture, where it passes usually under the name *Tacsonia Van Volxemii*. Hooker, in an account of this plant (Bot. Mag. 92: *pl. 5571*. 1866), cites "*Tacsonia* (*?Psilanthus*) *Van-Volxemii* Funk, in Journ. of Hort. v. 5. Feb. 1861. Lemaire, Jard. Fleuriste t. 381." The latter was published in 1854, but *plate 381* is *Costus Verschaffeltianus*. Hooker's reference probably should have been to the *Illustration Horticole* of Lemaire (1863), in which *pl. 381* is *Tacsonia Van Volxemii*. Therefore Karsten's specific name *antioquiensis* (1859–1860) antedates *Van Volxemii*.

The structure of the flower indicates that this species belongs to *Granadillastrum*, where apparently it is the only one with polymorphic leaves. The foliage and the long, slender peduncles are suggestive of one group of the tacsonias.

LOCAL NAME: "Cumba quiteña" (Bogotá).

178. **Passiflora peduncularis** Cav. Icon. Pl. 5: 15. *pl. 426*. 1799.

Tacsonia peduncularis Juss. Ann. Mus. Hist. Nat. 6: 395. 1805.

Murucuja peduncularis Spreng. Syst. Veg. 3: 43. 1826.

Tacsonia peduncularis var. *Dombeyana* DC. Prodr. 3: 334. 1828.

Tacsonia Dombeyana M. Roemer, Fam. Nat. Syn. 2: 197. 1846.

Stem stout, quadrangular, striate, tomentulous; stipules semi-ovate, 5 to 8 mm. long, 3 to 5 mm. wide, acute, coarsely and irregularly serrate, membranous, glabrous or tomentulous, purplish; petioles 1 to 1.5 cm. long, 3–4-glandular, tomentose; leaves 3-lobed to below middle (lobes ovate, subequal, 3 to 6 cm. long, 2 to 3.5 cm. wide, obtuse or acute, narrowed at base, the lateral divergent at nearly right angles), deeply cordate, serrulate, subcoriaceous, above slightly lustrous, glabrous, the veins dark, impressed, beneath tomentulous on nerves and veins; peduncles stout, 10 to 15 cm. long, subangular, tomentulous; bracts 2 to 3 cm. long, tomentulous, united one-half to two-thirds their length into a turbinate tube, the free portions ovate, acute, crenulate or entire; flowers white (usually rose-tinted when dry); calyx tube short-cylindric, 1.5 to 2 cm. long, scarcely longer than the bracts, enlarged at base, tomentulous without; sepals oblong, 3 to 4 cm. long, 0.8 to 1 cm. wide, obtuse, aristulate dorsally just below apex; petals oblong, slightly shorter than sepals; corona in several series, the uppermost consisting of narrowly liguliform filaments about 2 mm. long, below this an erect membrane about 1 mm. long, lobulate half its length, below which are about 6 indefinite rows of filiform threads 1 mm. long or less, the lowermost series of filaments, borne just above operculum, consisting of filiform

threads about 2 mm. long; operculum dependent, the margin recurved, minutely crenulate; ovary yellowish-tomentose; fruit spherical, 3 to 4 cm. in diameter.

TYPE LOCALITY: "In Guayaquil, et in Regno Peruviano prope Valparaiso et Almendral."

ILLUSTRATION: Cav. Icon. Pl. 5: *pl. 426*.

DISTRIBUTION: Probably restricted to the mountains of central and southern Peru, the only localities from which it is definitely known being on the upper western mountain slopes.

PERU: *Née* (Ma, type); *Pavón* (B, BM); *Mathews 480* (BM, G, Gen, P); *Dombey* (P, type of *Tacsonia peduncularis* var. *Dombeyana*); *Haenke 2118* (Y). "Andes," *Wilkes Expedition* (N).—Ancash: Ocros, Cajatambo, *Weberbauer 2675* (B, Gen).—Lima: Río Chillón, above Obrajillo, 3,000 meters, *Pennell 14393* (K, Ph, Y).—Moquehua: Carumas, 3,300 meters, *Weberbauer 7345* (F, K, N).

The long peduncles, differently shaped leaves, and white flowers, and the numerous filaments on the inside of the calyx tube are the most obvious characters which distinguish this species from *P. manicata*.

Triana and Planchon (Ann. Sci. Nat. V. Bot. 17: 143. 1873) have discussed at length two points in connection with Cavanilles' original description which have caused confusion. In Cavanilles' illustration each of the three bracts is 3-lobed, although in specimens studied by other writers each bract is entire and acute. Triana and Planchon suggest that, as the bracts doubtless are concave, they become more or less divided when pressed out.

These authors also call attention to the localities which Cavanilles gives for *P. peduncularis*, "Guayaquil, et in Regno Peruviano prope Valparaiso and Almendral," suggesting that this is doubtless Valparaíso, Chile, and that Cavanilles merely chanced to mention it as a locality visited by Née. The type at Madrid bears a label in Cavanilles' writing, reading "Habitat in Guayaquil, Valparaiso, Almendral, etc." The species is probably confined to the high mountains of central Peru.

Cavanilles states that the flower is "rosea," though all other notes that have been made give it as white. It is possible that Cavanilles included notes on a specimen of the scarlet-flowered *P. manicata*, growing at Guayaquil, in his description of *P. peduncularis*.

179. **Passiflora Weberbaueri** Harms, Bot. Jahrb. 54: Beibl. 117: 79. 1916.

Plant essentially glabrous; stem subterete or slightly angulate, glabrous, stipules broadly semi-ovate or semi-cordate, 1.2 to 1.7 cm. long, lacerate at margin; petioles up to 2.5 cm. long, bearing above middle and at apex 2 pairs of stipitate glands; leaves 6 to 14 cm. long, 2 to 5 cm. wide, 3-foliolate, the leaflets oblong or oblong-lanceolate to ovate-lanceolate, subequal or the lateral often shorter, subsessile or contracted to a short (up to 3 mm.) petiolule, acuminate, sharply serrate or dentate-serrate, strongly reticulate-veined, coriaceous, glabrous or subglabrous; peduncles 7 to 12 cm. long; bracts ovate-oblong or oblong, 4 to 4.5 cm. long, nearly 2 cm. wide, acute or obtusish, rounded or subcordate at base, lacerate-serrate at margin, tomentellous or puberulent within; flowers white; calyx tube urceolate-campanulate; sepals narrowly lanceolate, 5 to 6 cm. long, aristate; petals broadly linear, 4 to 5.5 cm. long, obtuse; corona in 3 series, the outer 2 ranks filamentose, the outermost filaments 1.5 to 2 cm. long, white, faintly purplish, those of the second series shorter, below this a short, erect membrane, filamentose at margin; operculum dependent, recurved and filamentose at margin; ovary velutinous.

TYPE LOCALITY: Cosñipata, Paucartambo, Cuzco, Peru.

DISTRIBUTION: Mountains of southeastern Peru, 2,300 to 2,800 meters altitude.

PERU: Cuzco: Cosñipata, *Weberbauer 6933* (B, type). Yanamayo, *Pennell 14040* (N, Ph, Y).

The only species to which this handsome plant is closely related is *P. trisecta*, which is densely tomentose and has much more deeply cleft bracts. The coronal structure of *P. Weberbaueri* is very similar to that of *P. semiciliosa*.

180. **Passiflora trisecta** Mast. in Mart. Fl. Bras. 13, pt. 1: 564. 1872.

Passiflora thaumasiantha Harms, Notizbl. Bot. Gart. Berlin 10: 813. 1929.

Stem terete, striate, sparsely or densely short-ferruginous-villous; stipules ovate-lanceolate, 1 to 2.5 cm. long, 0.5 to 1 cm. wide, acuminate, strongly oblique at base, laciniate-serrate (serrations terminating in a gland-tipped awn and more or less glandular along their margin), ferruginous-villosulous; petioles 2 to 5 cm. long, bearing 2 or 3 long, filiform glands at apex and 3 or 4 shorter, similar glands

near middle; leaves 3-foliolate, the leaflets oblong-lanceolate, 4 to 9 cm. long, 1.5 to 3 cm. wide, acuminate at apex, narrowed at base to a petiolule 1 to 3 mm. long, serrate, penninerved (secondary nerves 10 to 14 to a side, subimpressed above), yellowish green and densely short-villosulous above, densely yellowish-gray-tomentose beneath; peduncles 8 to 15 cm. long, stout, pubescent as stem; bracts ovate, 2.5 to 3.5 cm. long, 1.5 to 2.5 cm. wide, distinct to base, acuminate, deeply fimbriate-laciniate; calyx tube tubular-campanulate, 1 to 1.5 cm. long, 1.5 to 2 cm. wide, villous-tomentose and light green without, white within; sepals narrowly oblong, 2 to 4 cm. long, about 1 cm. wide, light green without, white within, slightly keeled dorsally, the keel terminating in a foliaceous awn about 1 cm. long; petals linear-lanceolate, 2 to 2.5 cm. long, 3 to 5 mm. wide, obtuse, white; corona in 3 series, all borne at throat of tube, the outer 2 filamentose, the filaments about 2 mm. long (probably longer in more fully developed specimens), white, the inner series consisting of minute, dentiform processes; operculum white, dependent, the margin recurved, crenulate; limen apparently none; ovary obovoid-oblong, densely ferruginous-sericeous-villous; fruit globose, about 5 cm. in diameter; seeds reticulate.

TYPE LOCALITY: Bolivia.

ILLUSTRATION: Rev. Chil. Hist. Nat. 34: 251. *f.* 47. 1930.

DISTRIBUTION: South-central Peru to Bolivia, 2,400 to 2,800 meters altitude.

PERU: Junín: La Mejorada, *Killip & Smith 23345* (N, Y).—Ayacucho: Anco, Río Mantaro Valley, *Killip & Smith 22178* (N, Y). Huanta, *Killip & Smith 23332* (F, N, Y).—Cuzco: Urubamba Valley, *Cook & Gilbert 824* (N); *Herrera 1673* (B, type of *P. thaumasiantha*). Mollepata, *Herrera 1223* (B).—Arequipa: Huaspa, *Raimondi 11479* (B).

BOLIVIA: *Pentland* (K, type).

An interesting species, placed by Masters among the granadillas though doubtless better referred to *Granadillastrum*. The foliage suggests *P. trifoliata*, but the flowers are quite different. The only close relative of this species, *P. Weberbaueri*, is a glabrous plant with differently shaped and toothed bracts and stipules, and longer corona filaments.

LOCAL NAME: "Montetumbos" (Peru).

Subgenus XV. DISTEPHANA

181. **Passiflora glandulosa** Cav. Diss. 10: 453. *pl. 281*. 1790.

Tacsonia glandulosa Juss. Ann. Mus. Hist. Nat. 6: 391. 1805.

Tacsonia canaliculata Juss. Ann. Mus. Hist. Nat. 6: 392. 1805.

Tacsonia glandulosa var. *canaliculata* DC. Prodr. 3: 335. 1828.

Tacsonia Rohriana DC. Prodr. 3: 335. 1828.

(?)*Tacsonia Stoupyana* DC. Prodr. 3: 335. 1828.

Tacsonia Fockeana Miq. Linnaea 18: 364. 1844, as *Tacksonia*.

Distephana glandulosa M. Roemer, Fam. Nat. Syn. 2: 198. 1846.

Distephana glandulosa var. *canaliculata* M. Roemer, Fam. Nat. Syn. 2: 198. 1846.

(?)*Distephana Stoupyana* M. Roemer, Fam. Nat. Syn. 2: 199. 1846.

Distephana Rohriana M. Roemer, Fam. Nat. Syn. 2: 199. 1846.

Distephana Fockeana M. Roemer, Fam. Nat. Syn. 2: 199. 1846.

Tacsonia subcoriacea Garcke, Linnaea 22: 62. 1848.

(?)*Passiflora glandulosa* var. *Stoupyana* Mast. in Mart. Fl. Bras. 13, pt. 1: 600. 1872.

Passiflora glandulosa var. *canaliculata* Mast. in Mart. Fl. Bras. 13, pt. 1: 600. 1872.

Passiflora im Thurnii Mast. Gard. Chron. III. 23: 305, 307. *f. 114*. 1898.

Passiflora silvicola Barb. Rodr. Contr. Jard. Bot. Rio de Janeiro 4: 91. *pl. 14*. 1907.

Stem terete or subangulate, glabrous or rarely minutely puberulent, purplish; stipules linear-subulate or setaceous, very soon deciduous; petioles up to 2.5 cm. long, biglandular at or below middle, the glands sessile; leaves ovate-oblong to oblong-lanceolate, 6 to 15 cm. long, 4 to 10 cm. wide, acute or acuminate, mucronulate, entire or slightly undulate, cordulate, rounded, or acutish at base, thick-coriaceous to subcoriaceous, glaucous and glabrous or finely and softly puberulent beneath, occasionally setulose on nerves; peduncles up to 8 cm. long; bracts linear-lanceolate, 5 to 10 mm. long, 1 to 2 mm. wide (rarely ovate-lanceolate, and much larger?), glandular at margin; flowers red or scarlet; calyx tube cylindric, 1.5 to 2.5 cm. long, 0.8 to 1 cm. wide, ventricose at base; sepals oblong or linear-oblong, 2 to 5 cm. long, 0.6 to 1.3 cm. wide, short-awned near apex, erect, or reflexed in age; petals slightly shorter than sepals; corona in 2 series, the outer consisting of free, awl-

shaped, white or pale pink filaments about 1 cm. long, the inner a cylindric membrane, arising near base of tube, subadnate to tube, the upper part free, lacerate-filamentose at apex, the cut portion 2 to 5 mm. long; operculum borne about 3 mm. above base of tube, pink, dependent, the margin recurved, short-filamentose; limen membranous, cupuliform, about 1 mm. high, closely surrounding base of gynophore, minutely fimbrillate; ovary ellipsoidal, subangular, glabrous or usually white-puberulent; fruit ovoid, 5 to 6 cm. long, 2.5 to 3 cm. in diameter, the pericarp coriaceous; seeds obovate, about 8 mm. long and 4 mm. wide, finely reticulate.

TYPE LOCALITY: Cayenne.

ILLUSTRATIONS: Cav. Diss. 10: *pl. 281;* Gard. Chron. III. 23: 307. *f. 114.* 1898; Contr. Jard. Bot. Rio de Janeiro 4: *pl. 14.*

DISTRIBUTION: Guianas to the lower Amazon basin and easternmost Brazil.

FRENCH GUIANA: *Rohr* (BM, Gen, type of *Tacsonia Rohriana*); *Stoupy* in 1788 (P, type); *Perrottet 31* (Gen, P); *Leschenault* (BM, P); *Leprieur 36* (P), *Poiteau* (Gen); *Mélinon* in 1864 (B, P). Karouany, *Sagot 287* (BM, Bo, Brux, Gen, P, S, V, Y). Cayenne, *Broadway 384* (N, Y), *764* (N, Y).

SURINAM: *Hohenacker 30* (S); *Landré 620,* in part (Leid); *Hulk 358* (Ut); *Hostmann 1224* (BM). Nickerie River, *Tulleken 325* (Leid), *499* (Leid). Bergendaal, *Focke 931* (Ut, type of *Tacsonia Fockeana*). Paramaribo, *Kappler 1665* (Bo, P, S, Ut). Victoria, *Kappler 1360* (Bo, P, S, Ut). Republiek, *Kuyper 76* (B, Ut). Saramacca River, *Pulle 65* (Ut). Wajombo River, *Pulle 353* (Ut). Ananasberg, *Tresling 309* (Ut). Gran Rio, *Hulk 295* (Ut). Emma Range, *B. W. 5818* (Ut). Maratakka River, *B. W. 978* (Ut). Brownsberg, *Stahel & Gonggrijp 61* (Ut), *106* (Ut). Sectie O, *Lanjouw 177* (Ut); *Pulle 202* (Ut); *Gonggrijp 2* (Ut). Zanderij I, *Lanjouw 306* (Ut). Abina, *Lanjouw 431* (Ut). Voltzberg, *Lanjouw 945* (Ut). Gansee, *Lanjouw 1283* (Ut). Coppename River, *Boon 1011* (Ut); *Stahel & Gonggrijp 88* (Ut). Tapanahoni River, *Versteeg 772* (Ut). Cottica, *Versteeg 318* (Ut); *Gonggrijp 39* (Ut). Para, *Voltz* (Ut); *Splitgerber 731* (Leid); *Wullschlägel 218* (Brux).

BRITISH GUIANA: *Schomburgk 33,* in part (P), *606* (Bo, Brux, N, Ut, Y), *709* (BM, Gen, Ut); *Taylor* in 1916 (Y). Penal Settlement, *Hitchcock 17074* (N, Y). Bartica, *Linder 129* (G, S); *Sandwith 471* (K, Ut). Kangaruma, *Gleason 215* (N, Y). Tumatumari, *Gleason 167* (N, Y), *326* (Y), *389* (N, Y); *Linder 30* (G). Demerara

River, *Jenman 6709* (BG), *6914* (B, F, N, Ph, Y); *De la Cruz 2473* (G, N, Y); *Persaud 24* (F). Potaro River, *De la Cruz 4474* (N, Y); *A. W. Bartlett* in 1907 (BG). Waini River, *De la Cruz 3617* (N, Y). Pomeroon River, *De la Cruz 1184* (Y); *Jenman 7534* (BG, Y). Mazaruni Station, *Archer 2474* (N).

BRAZIL: *Hoffmannsegg* (BW).—Amazonas: *Jobert 256* (P). Serra de Malacacheta, *Kuhlmann 3412* (N).—Pará: Pará, *Killip & Smith 30294* (N, Y); *Da Costa 150* (N). Pinheiro, *Killip & Smith 30314* (N, Y). Ilha do Mosqueiro, *Killip & Smith 30500* (N, Y). Marco, *Baker 9228* (Go). Rio Xingu, *Bach 4147* (Go). Rio Araguaya, *Kissenberth 3566* (Go). Peixe Boa, *Huber 8722* (Go). São João, *Burchell 9303* (K). Santarem, *Spruce* (K); *Jobert 855* (P); *Swallen 3288* (N).—Ceará: Campo Grande, *Löfgren 297* (S). Serra da Ibiapaba, *Dahlgren 949* (F).—Pernambuco: *Ramage* in 1887 (BM).—Rio de Janeiro: Quinta de São Cristovão, cultivated(?), *Glaziou 10874* (P).

There appears to be no justification for the numerous species which have been segregated from *P. glandulosa*, nor does it seem possible to recognize any well defined varieties. The numerous specimens examined differ to a certain extent in leaf shape, and in the degree to which the inner corona is cleft.

The names *Tacsonia Stoupyana* and *P. glandulosa* var. *Stoupyana* have arisen from Cavanilles' statement that he saw in the Jussieu Herbarium another Stoupy collection belonging to this species, in which the bracts were ovate. These bracts are drawn separately in Cavanilles' illustration of *P. glandulosa*, and are 1 to 1.5 cm. long and 4 to 5 mm. wide. None of the specimens cited above has such large bracts, but several of the species of this subgenus have variable bracts and this may be the case with *P. glandulosa*. Or perhaps the specimen in question is a mixture of *P. glandulosa* and *P. quadriglandulosa*.

Although I have not seen the type specimen of *Passiflora im Thurnii*, there are several sheets at Kew so named by Masters; except for having larger flowers these do not appear to differ materially from forms of *P. glandulosa*.

Passiflora silvicola is without doubt this. Specimens I collected at the type locality, Pinheiro, near Pará, Brazil, agree excellently with typical Guiana material of *P. glandulosa*.

LOCAL NAMES: "Markoesa," "kalawiroe," "jawohëméroeke" (Surinam); "maracujá cabeza de gado" (Ceará).

182. **Passiflora variolata** Poepp. & Endl. Nov. Gen. & Sp. 2: 58. *pl. 179.* 1835.

Cieca variolata M. Roemer, Fam. Nat. Syn. 2: 140. 1846.

A woody vine, glabrous throughout; stem terete; stipules linear-falcate, soon deciduous; petioles about 1 cm. long, biglandular near base, the glands sessile; leaves ovate or oblong, 5 to 12 cm. long, 2 to 5 cm. wide, acute or acuminate, aristulate at apex, rounded or subacute at base, entire, 1-nerved, coriaceous, lustrous above, dull beneath; peduncles solitary, 3 to 8 cm. long, becoming stout; bracts borne near apex of peduncle, narrowly lance-linear, about 8 mm. long and 1 mm. wide, bearing 1 or 2 large glands on either margin near base; flowers red; calyx tube broadly campanulate, up to 7 mm. long and 10 mm. wide; sepals linear-oblong, 3.5 to 4 cm. long, about 7 mm. wide, obtuse, slightly carinate (keel terminating in an awn 2 to 2.5 mm. long), glandular on outside near margin, the glands oblong, 2 mm. long, sessile; petals subequal to sepals, more slender; corona in 2 ranks, the outer tubular, 8 to 10 mm. high, including a fringe of linear-subulate filaments about 2 mm. long, the inner rank borne at base of the outer, 2 to 3 mm. long, membranous in lower half, cleft in upper half into linear-subulate filaments; operculum dependent, 4 to 5 mm. long, denticulate; limen closely surrounding base of gynophore, lacerate at margin; ovary ovoid, subacute at ends.

TYPE LOCALITY: "Maynas (Yurimaguas, Peru) et Provinciae brasiliensis Rio Negro ad oppidum Ega."

ILLUSTRATION: Poepp. & Endl. Nov. Gen. & Sp. 2: *pl. 179.*

DISTRIBUTION: Upper Amazon basin of Venezuela, Peru, and Brazil.

VENEZUELA: Amazonas: San Antonio, upper Río Orinoco, *Holt & Blake 697* (N). San Fernando de Atabapo, *Gaillard 169* (P).

BRAZIL: Amazonas: Ega, *Poeppig* (V, type). São Gabriel, *Spruce 2247* (K, P); *G. H. H. Tate 135* (Y). Panuré, *Spruce 2868* (K, P).

The vegetative parts of this plant are much like those of *P. glandulosa* and *P. Ernesti*. In addition to having a much shorter calyx tube, the most obvious character by which it may be distinguished from *P. glandulosa*, the present species lacks the outer free corona filaments but has a second series *within* the tubular membrane. *Passiflora variolata* even more closely resembles *P. Ernesti* in leaf shape, bracts, and other vegetative parts, but the coronal structure is entirely different.

The type specimen, at Vienna, is in an excellent state of preservation, and the foregoing description has been derived from that and the other specimens here cited. The structure of the corona as described and figured by Poeppig and Endlicher is not strictly in accord with that of the type.

183. **Passiflora callimorpha** Harms, Repert. Sp. Nov. 18: 295. 1922.

Stem terete, ferruginous-villous-lanate; stipules 1 to 1.5 cm. long, 0.8 to 1 cm. wide, deeply pinnatisect into setaceous or filiform divisions, glabrous; petioles 0.5 to 1.5 cm. long, minutely 2–4-glandular, the glands imbedded in the indument; leaves ovate-oblong or ovate-lanceolate, 5 to 13 cm. long, 2.5 to 5 cm. wide, acuminate, rounded or cordulate at base, irregularly denticulate-serrate, coriaceous, thick, rugose, lustrous, glabrous or slightly villosulous on the nerves above, densely ferruginous-lanate beneath; peduncles terete, 5 to 13 cm. long, stout, about 2 mm. in diameter, ferruginous-villous-lanate; bracts ovate-oblong, 2 to 3 cm. long, 1 to 1.5 cm. wide, distinct to base, rounded at apex, laciniate-fimbriate, membranous, rufo-villous, the margin glabrous, purplish; flowers violet-rose(?); calyx tube cylindric-campanulate, 2 to 2.5 cm. long, 0.6 to 1.4 cm. wide, ferruginous-lanate without; sepals narrowly oblong, 4.5 to 5.5 cm. long, about 1 cm. wide, cucullate, slightly carinate on outside, the keel terminating in a setaceous awn about 1 cm. long; petals slightly shorter than sepals; corona 2-ranked, the upper rank filamentose to base (filaments subulate, 1.2 to 1.5 cm. long, purplish in lower half, pale in upper), the lower rank borne about 0.8 cm. below the preceding, tubular, 6 to 7 mm. long, membranous, filamentose in upper third; operculum dependent, about 5 mm. long, pinkish, the margin recurved, fimbrillate, whitish; limen none; ovary ovoid, densely ferruginous-hirsute.

TYPE LOCALITY: Mapiri, Bolivia.

DISTRIBUTION: Known only from the vicinity of La Paz, Bolivia.

BOLIVIA: La Paz: Mapiri, *Bang 1556* (B, type, BM, Bo, CM, G, K, N, Ph, Y). Yungas, 1,200 meters, *Rusby 2465* (F, N, Y). San Pedro, near Soratá, *Mandon 609bis* (P).

The vegetative parts of this plant suggest strongly *P. insignis*, a species of the subgenus *Tacsonia*, which has the calyx tube well developed, though shorter than the sepals, and a single-ranked corona.

Passiflora callimorpha clearly should be referred to *Distephana*, where it comes nearest *P. coccinea*. In addition to the points mentioned in the key, the single—not double—row of filaments at the throat of the tube and the dense, woolly indument distinguish *P. callimorpha* from *P. coccinea*.

184. **Passiflora Buchtienii** Killip, Journ. Wash. Acad. Sci. 14: 115. 1924.

Plant glabrous throughout; stem slender, wiry, 4–5-angular; stipules narrowly elliptic, 1 to 1.5 cm. long, 2 to 3 mm. wide, incised-serrate, the serrations cuspidate; petioles very slender, up to 1.5 cm. long, biglandular below middle, the glands 0.5 mm. long; leaves 2 to 3 cm. long, 2.5 to 4 cm. wide, 3-lobed to just below middle (lobes oblong, 6 to 8 mm. wide, cuspidate), rounded or slightly cuneate at base, 3-nerved, finely cuspidate-serrate, membranous; peduncles up to 2.5 cm. long, stout; bracts oblong, 1 to 1.5 cm. long, 5 to 6 mm. wide, obtuse, incised-serrate; flowers scarlet; calyx tube cylindric, 1.5 cm. long, 8 mm. wide at the slightly enlarged throat; sepals linear-lanceolate, about 5 cm. long, 6 mm. wide, slightly cucullate at apex, aristate dorsally just below apex (awn 6 mm. long); petals linear, about 4 cm. long, 5 mm. wide, obtuse; corona 2-ranked, the outer rank filamentose (filaments 5 mm. long), the inner cylindric, 6 mm. long, membranous, the upper half lacerate-cleft; operculum about 6 mm. long, dependent, denticulate; ovary narrowly ellipsoidal.

TYPE LOCALITY: Unduavi, Province of La Paz, Bolivia.

DISTRIBUTION: Known only from type locality, in north-central Bolivia, 3,300 meters altitude.

BOLIVIA: La Paz: Unduavi, *Buchtien 2896* (N, Y), *6004* (B, N, type), *8991* (N), *8992* (N).

From its nearest relative, *P. vitifolia*, this species is at once distinguished by smaller, glabrous leaves, minute petiolar glands, shape of the bracts and stipules, and its double-ranked rather than triple-ranked corona.

185. **Passiflora coccinea** Aubl. Pl. Guian. 2: 828. *pl. 324*. 1775.

Passiflora velutina DC. Prodr. 3: 327. 1828.

Tacsonia pubescens DC. Prodr. 3: 335. 1828.

Passiflora fulgens Wallis ex Morren, Belg. Hort. 16: 193. *pl. 13*. 1866.

Passiflora coccinea var. *minor* Mast. in Mart. Fl. Bras. 13, pt. 1: 605. 1872.

Passiflora coccinea var. *velutina* Mast. in Mart. Fl. Bras. 13, pt. 1: 605. 1872.

Passiflora toxicaria Barb. Rodr. Contr. Jard. Bot. Rio de Janeiro 4: 94. *pl. 17A*. 1907.

Stem terete or subangulate (older portions deeply 3-grooved), finely rufo-puberulent to densely rufo-tomentose, purplish; stipules narrowly linear or linear-setaceous, 4 to 6 mm. long, entire or minutely glandular-serrulate; petioles up to 3.5 cm. long, glandless, or biglandular at base, the glands sessile; leaves oblong or rarely nearly orbicular, 6 to 14 cm. long, 3 to 7 cm. wide, not lobed, acute, acuminate, or subobtuse at apex, subcordate at base, duplicate-serrate or crenate, above glabrescent or sparsely and finely pubescent, tomentellous on nerves, beneath ferruginous- or cano-tomentose, membranous; peduncles stout, up to 8 cm. long; bracts ovate, up to 6 cm. long and 3.5 cm. wide, concave, free to base, crenate or sharply serrate, usually glandular at margin, ferruginous-tomentose without, finely puberulent within, red or deep orange; calyx tube short-cylindric-campanulate, 1.5 to 2 cm. long, 1 to 1.3 cm. wide at throat; sepals linear-lanceolate, 3 to 5 cm. long, 8 to 10 mm. wide, scarlet or red, cucullate, slightly carinate, the keel terminating in an awn up to 1.3 cm. long; petals linear, 3.5 to 4 cm. long, 7 to 8 mm. wide, scarlet or red; corona in 3 series, the 2 outer consisting of subulate filaments about 1 cm. long, deep purple in upper half, pale pink to white in lower half, the inner rank of the corona white, membranous at base, filamentose above, the filaments 6 to 8 mm. long; operculum white, dependent, recurved and filamentose at margin, the filaments about 2 mm. long; limen cupuliform; ovary ovoid, densely yellowish-tomentose; fruit ovoid or subglobose, about 5 cm. in diameter, finely tomentulous, edible, the exocarp brittle, orange or yellow, mottled and 6-striped with green; seeds narrowly obovate, about 6 mm. long, 4 mm. wide, minutely reticulate, the reticulations linear at margin.

TYPE LOCALITY: Oyac, French Guiana.

ILLUSTRATIONS: Aubl. Pl. Guian. *pl. 324;* Cav. Diss. 10: *pl. 280;* Belg. Hort. 16: *pl. 13;* Contr. Jard. Bot. Rio de Janeiro 4: *pl. 17A;* Descourtilz, Fl. Pitt. Méd. Antill. 5: *pl. 350.*

DISTRIBUTION: Guianas, southern Venezuela, and Amazon basin of Peru, Bolivia, and Brazil. Cultivated in Guadeloupe.

GUADELOUPE: Cultivated, *Coudreau* (P).

FRENCH GUIANA: *Lamarck Herbarium* (P); *Perrottet 387* (Gen, P); *Mélinon 79* (P), *277* (BM); *Leblond* in 1792 (Gen); *Poiteau* (Gen); *Gabriel* in 1802 (Gen); *Sagot 283* (BM, G, Gen, P, S, V); *Leschenault* (N, P); *Broadway 541* (N, Y), *780* (G, N, Y); *Wachenheim 115* (N).

SURINAM: *B. W. 3465* (Ut), *3474* (Ut), *5125* (Ut); *Boon 1259* (Ut); *Hostmann & Kappler 1567* (S); *Kappler* (Ut); *Lanjouw 1203* (Ut); *Pulle 186* (Ut); *Samuels* in 1916 (Y); *Versteeg 537* (Ut); *Wullschlägel 217* (Brux, Ut); *Gonggrijp & Stahel 83* (Ut); *Voltz* (Ut).

BRITISH GUIANA: *Hitchcock 17072* (G, N, Y), *17224* (G, N, Y); *Jenman 2000* (BG, Y), *2079* (Y), *5408* (BG, BM, Y), *7887* (N); *Linder 153* (G, S); *Schomburgk 33*, in part (P, Ut), *938* (BM, Bo, Gen, N, V); *Graham 128* (CM); *Persaud 263* (F); *Lang & Persaud* in 1922 (F); *Wahy 142* (BG, N); *Ule 8666* (Go); *De la Cruz 1060* (G, N, Y), *1548* (F, N, Y), *2317* (G, N, Y), *2701* (N, Y), *2879* (N, Y), *2918* (N, Y), *3753* (N, Y), *3917* (G, N, Y), *4499* (N, Y); *Archer 2428* (N).

VENEZUELA: Amazonas: Esmeralda, *G. H. H. Tate 357* (Y).

PERU: *Weberbauer 6761* (N). Pampa del Sacramento, *Castelnau* in 1847 (P).—San Martín: Lamas, *L. Williams 5069* (F), *6379* (N), *6450* (F).—Loreto: Masisea, *Killip & Smith 26851* (N, Y). Yurimaguas, *Killip & Smith 27574* (F, N, Y), *27995* (N), *29062* (F, N, Y); *L. Williams 4745* (F), *7821* (N); *Poeppig* in 1831 (V). Río Marañón, *Killip & Smith 29186* (N), *29214* (N, Y). Lower Río Huallaga, *L. Williams 3894* (N), *3917* (N), *4145* (N). Río Ucayali, *Huber 1411* (Go), *1486* (Go); *Tessmann 3187* (Gen).—Junín: Puerto Yessup, *Killip & Smith 26290* (F, N, Y). Puerto Bermúdez, *Killip & Smith 26673* (F, N, Y). Cahuapanas, *Killip & Smith 26820* (N).—Ayacucho: Kimpitiriki, *Killip & Smith 22909* (F, N, Y).—Cuzco: Marcapata Valley, *Herrera 1155* (N).

BOLIVIA: Beni: Rurrenabaque, *Mulford Biol. Expl. 475* (N, Y), *475A* (Y). Junction of Beni and Madre de Dios rivers, *Rusby 492* (F, N, Y).—La Paz: Huachi, *Mulford Biol. Expl. 470* (N, Y), *545* (N, Y). Mapiri, *Bang 1557* (BM, Bo, F, G, Gen, N, Ph, V, Y). Yungas, *Bang 312* (BM, Bo, N, V, Y); *Rusby 493* (N, Y). San Carlos, *Buchtien 1920* (N). Coroico, *Buchtien 6002* (N). Charpi, *R. S. Williams 790* (N, Y). Charopampa, *Buchtien 1677* (Y). Huanachorisa, *R. S. Williams 1536* (Y). Tolapampa, *R. S. Williams 847* (Y).— Santa Cruz: Buenavista, *Steinbach 6352* (Gen).

BRAZIL: *Collector?* (P, type of *P. velutina*); *Hoffmannsegg* (BW).—Amazonas: Cachoeira Manajo, *Holt & Blake 436* (N, Ut). Camanáos, *Holt & Blake 568* (N). São Gabriel, *Holt & Blake 601* (N).

Rio Negro, *G. H. H. Tate 97* (Y); *Ducke 24041* (N). Rio Juruá, *Ule 5555* (Gen, Go). Managuiry, *Spruce 1637* (P, V). Ega, *Poeppig* in 1832 (V).—Pará: Ilha do Mosqueiro, *Killip & Smith 30414* (N, Y). Pará, *Killip & Smith 30251* (N, Y); *Dahlgren & Sella 758* (F). Marco, *Baker 67* (BM, Gen, Go, Ut, V). Lower Rio Trompetas, *Ducke 10956* (Go). Obidos, *Ducke 14637* (N). Rio Xingú, *Bach 4143* (Go). Santarem, *Jobert* in 1877 (P). Santa Maria, *Mexia 6057a* (N).—Acre: Rio Macauhan, *Krukoff 5363* (Gen, N, Ut, Y).—Matto Grosso: *Weddell 3404* (P); *Moore 312* (BM, Y).

In *P. coccinea* the bracts are much larger than in its near relatives and they completely envelop the flower bud. Of the large number of specimens of this species examined none have lobed leaves. The specimens from Peru and Bolivia agree well with typical Guiana material, although often the leaves are proportionately narrower. *Passiflora velutina* is a variant with a very dense, soft indument.

LOCAL NAMES: "Snekie marcoesa" (Surinam); "marudi-oúra," "monkey-guzzle" (British Guiana); "pachio-tutumillo" (Bolivia); "thomé assú" (Brazil). The fruit is edible.

186. **Passiflora quadriglandulosa** Rodschied, Med. Chir. Bemerk. Esseq. 77. 1796.

Tacsonia quadriglandulosa DC. Prodr. 3: 335. 1828.

(?)*Tacsonia quadridentata* DC. Prodr. 3: 335. 1828.

(?)*Tacsonia pubescens* DC. Prodr. 3: 335. 1828.

(?)*Passiflora Lockharti* G. Don ex M. Roemer, Fam. Nat. Syn. 2: 185. 1846, name only.

(?)*Distephana pubescens* M. Roemer, Fam. Nat. Syn. 2: 199. 1846.

(?)*Distephana quadridentata* M. Roemer, Fam. Nat. Syn. 2: 199. 1846.

Distephana quadriglandulosa M. Roemer, Fam. Nat. Syn. 2: 199. 1846.

(?)*Passiflora vitifolia* var. *minor* Mast. in Mart. Fl. Bras. 13, pt. 1: 508. 1872.

Passiflora translinearis Rusby, Mem. N. Y. Bot. Gard. 7: 309. 1927, as to flowers.

Passiflora yacumensis Rusby, Mem. N. Y. Bot. Gard. 7: 310. 1927.

Stem terete, glabrous or the younger parts pilosulous; stipules setaceous, 3 to 5 mm. long, deciduous; petioles 1 to 2.5 cm. long, obsoletely biglandular at base; leaves polymorphic, entire and broadly to narrowly oblong, or oblong-lanceolate, 8 to 15 cm. long,

3 to 8 cm. wide, or asymmetrically 2- or 3-lobed (lobes acuminate, the middle lobe ovate or ovate-lanceolate, longer than the lateral lobes, up to 6 cm. wide), rounded or subtruncate at base, irregularly repand-dentate, glabrous or finely puberulent on the nerves above, finely puberulent or tomentellous beneath; peduncles up to 5 cm. long; bracts narrowly linear to narrowly oblong-lanceolate, 0.8 to 1.5 cm. long, 1 to 5 mm. wide, glandular-serrulate; flowers showy, pink, red, or scarlet; calyx tube short-cylindric, 1 to 1.5 cm. long, about 1 cm. wide, ventricose at base; sepals oblong-lanceolate, 6 to 8 cm. long, about 1 cm. wide, carinate, the keel terminating in an awn 2 to 10 mm. long; petals 6 to 7 cm. long, obtuse; corona 3-ranked, the 2 outer ranks filamentose to base, the filaments bright red or scarlet, narrowly linear at base, subulate toward apex, the outermost about 1.5 cm. long, the others 0.8 to 1 cm. long, the third coronal rank about 1.5 cm. long, tubular, filamentose in upper third only, the membranous portion deep red, the filaments white; operculum 6 to 7 mm. long, dependent, the margin recurved, short-filamentose; ovary ovoid, ferruginous-tomentulous; fruit ovoid, 3.5 cm. long, 1.5 cm. in diameter (young); seeds ovate, reticulate.

TYPE LOCALITY: Mouth of Essequibo River, British Guiana(?).

ILLUSTRATIONS: Bot. Mag. 78: *pl. 4674;* Fl. des Serres 8: *pl. 803;* Lemaire, Jard. Fleuriste 4: *pl. 357.*

DISTRIBUTION: Trinidad and British Guiana, and the Amazon basin of Peru, Bolivia, and Brazil; cultivated elsewhere in Brazil; also in the Lesser Antilles, where perhaps introduced.

MARTINIQUE: *Bélanger 263* (P); *Hahn 1167* (B, Bo, Gen, P); *Duss 435* (B).

GRENADA: *Miller 318* (B); *Eggers 6048b* (B), *6073* (B); *Broadway 1482* (B).

TRINIDAD: *Britton, Freeman & Nowell 2613* (N, Y); *Kuntze 1123* (Y); *Trinidad Herb. 638* (T), *2598* (T), *3514* (B, T, Y), *10733* (T), *11508* (T), *11705* (T); *Lockhart 369* (K).

BRITISH GUIANA: Barima River, *Hitchcock 17489* (G, N, Y); *Jenman 7016* (BG, Y), *7121* (BG), *7140* (BG). Essequibo River, *Jenman 6362* (BG), *7670* (BG, Y); *Sandwith 306* (K). Pomeroon River, *De la Cruz 3133* (N, Y). Waini River, *A. W. Bartlett 8596* (BG, Y). Camana Road, *Davies 1024* (K). Mazaruni River, *Jenman 5409* (BG), *5875* (K).

PERU: Loreto: *Fox 89* (K). Río Itaya, *Killip & Smith 29408* (F, N, Y). Mishuyacu, *Killip & Smith 29974* (F, N, Y); *Klug 1069*

(F, N, Y), *1226* (F, N, Y). Río Nanay, *L. Williams 562* (N). Caballo-cocha, *L. Williams 2459* (N). La Victoria, *L. Williams 3118* (N). Chasuta, *Raimondi 581* (B). Peras, *Fox 119* (K). Río Marañón, *Mexia 6405* (N). Río Ucayali, *Tessmann 3309* (Gen).

BOLIVIA: Beni: Santa Ana de Yacuma, 225 meters, *Cárdenas* (*Mulford Biol. Expl. 21 special;* Y, type of *P. yacumensis*).

BRAZIL: Amazonas: Capoeiras, *Spruce 1789* (BM, K, P). Manáos, *Killip & Smith 30002* (N, Y), *30096* (N, Y); *Ule 5112* (Gen, Go); *Labroy 23* (P); *Jobert* in 1877 (P); *Spruce 1616* (P). Rio Branco, *Ule 7852* (Go). Codajaz, *Krukoff 4504* (Gen, N, Ut, Y). Paranagua, *Krukoff 4552* (Gen, Y).—Pará: Pará, *Huber 116* (Go). Almerrim, *Ducke 17335* (B, N, Ut).—Rio de Janeiro: Quinta de São Christovão, cultivated, *Glaziou 9851* (Cop, P).

LOCAL NAMES: "Simitu" (British Guiana); "maracujá" (Brazil).

Four species of *Distephana*, i.e., *P. vitifolia*, *P. speciosa*, *P. coccinea*, and *P. quadriglandulosa*, are easily confused, and may best be considered here at one place.

P. vitifolia: Indument dense; bracts oblong-lanceolate, averaging about 5 mm. wide, rarely as much as 8 mm. wide; leaves nearly always deeply 3-lobed; outer corona filaments bright red or bright yellow. The center of distribution is Panama and northern Colombia, the species extending to the headwaters of the Orinoco, reaching to the Amazon basin only at its western limits.

P. speciosa: Indument very dense; bracts more nearly oval, slightly broader than in *P. vitifolia;* leaves usually 3-lobed, but unlobed ones often on same individual; outer corona filaments white. Eastern Brazil.

P. coccinea: Indument dense; bracts broadly ovate, 1 cm. or more wide; leaves unlobed, irregularly serrate; outer corona filaments deep purple above, white or pink below, less tapering than in *P. quadriglandulosa*. Common in the Guianas and probably in northeastern Brazil, extending up the Amazon and its tributaries to Bolivia and Peru.

P. quadriglandulosa: Indument much scantier than in the others, sometimes almost wholly wanting; bracts varying from narrowly linear (scarcely 1 mm. wide) to oblong-lanceolate as in *P. vitifolia*, in a few instances broadly ovate as in *P. coccinea* and constituting a variety; leaves unlobed or 3-lobed with about the same frequency, sometimes asymmetrically bilobed; outer corona filaments bright red or scarlet and long-attenuate. The range is essentially the same

as that of *P. coccinea*, the typical form with narrowly linear bracts prevailing in the northern part of the range, the following variety restricted to the Amazon basin.

186a. **Passiflora quadriglandulosa** var. **involucrata** (Mast.) Killip, comb. nov.

Passiflora vitifolia var. *involucrata* Mast. in Mart. Fl. Bras. 13, pt. 1: 608. 1872.

Passiflora punicea Mart. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 608. 1872, as synonym.

Leaves generally deeply 3-lobed; bracts broadly ovate, 3 to 5 cm. long, 1.5 to 3 cm. wide, doubly serrate, at least the lower teeth gland-tipped.

TYPE LOCALITY: Cubata Cataracts. Rio Japurá, Brazil.

DISTRIBUTION: Amazon basin of Peru and Brazil.

PERU: Loreto: Mishuyacu, *Klug 342* (F, N, Y), *417* (F, N, Y). Río Nanay, *L. Williams 780* (N), *1104* (N). Iquitos, *Ducke 21230* (N).

BRAZIL: Amazonas: Rio Japurá, *Spruce 3022* (K, type of *P. vitifolia* var. *involucrata*). São Paulo de Olivença, *Krukoff 8925* (Y). —Pará: Rio Tapajoz, *Ducke 14644* (K, N, Ut); *Krukoff 1042* (Y). Upper Rio Cupary, *Krukoff 1102* (Y).

Klug gives as a local name for this variant "granadilla ácida."

187. **Passiflora vitifolia** HBK. Nov. Gen. & Sp. 2: 138. 1817. Figure 1, *a*.

Passiflora sanguinea J. E. Sm. in Rees. Cycl. 26: *Passiflora* No. 45. 1819.

Passiflora punicea R. & P. ex DC. Prodr. 3: 329. 1828.

Tacsonia sanguinea DC. Prodr. 3: 334. 1828.

Macrophora sanguinea Raf. Fl. Tellur. 4: 103. 1838.

Passiflora vitifolia var. *cassiquiarensis* M. Roemer, Fam. Nat. Syn. 2: 181. 1846.

Passiflora serrulata var. *pubescens* Griseb. Bonplandia 6: 7. 1858.

Passiflora servitensis Karst. Linnaea 30: 163. 1859.

Tacsonia Buchanani Lemaire, Ill. Hort. 14: *pl. 519*. 1867.

Stem, petioles, and peduncles densely ferruginous-tomentose; stem terete; stipules setaceous, 3 to 5 mm. long, deciduous; petioles 2 to 5 cm. long, biglandular at base, occasionally with 2 or 3 additional glands near middle, the glands orbicular; leaves 7 to 15 cm. long, 8 to

18 cm. wide, 3-lobed to below middle (lobes acuminate, the central lobe narrowed at base, up to 6 cm. wide), truncate to cordate at base, 3–5-nerved, irregularly repand-dentate or crenate, membranous, usually lustrous above, tomentulous on nerves above, densely puberulent or tomentulous beneath; peduncles stout, 4 to 9 cm. long; bracts oblong to oblong-lanceolate, 1.5 to 2.5 cm. long, 0.4 to 0.8 cm. wide, acuminate, glandular-serrate or rarely subentire; flowers scarlet, bright red, or vermilion; calyx tube cylindric, 1 to 1.8 cm. long, about 1.5 cm. wide, ventricose at base; sepals slightly fleshy, lanceolate, 6 to 8 cm. long, 1 to 2 cm. wide, obtuse, without minutely puberulent, carinate, the keel terminating in an awn about 1 cm. long, within magenta, glabrate; petals linear-lanceolate, 4 to 6 cm. long, 0.8 to 1.5 cm. wide, obtuse; corona 3-ranked, the 2 outer ranks filamentose, the outermost filaments awl-shaped, 1.5 to 2 cm. long, erect, bright red or bright yellow, those of the next rank about 1 cm. long, pale red, the third rank tubular, erect, closely surrounding the gynophore, about 1 cm. long, the upper part cleft into numerous filiform divisions, the lower part membranous, slightly fleshy, pale red without and within; operculum deflexed, 7 to 10 mm. long, fimbriate; ovary ellipsoidal, densely tomentulous; fruit ovoid, about 5 cm. long, 3 cm. in diameter, puberulent, very fragrant; seeds much compressed, obcordate, 5 mm. long, 3.5 mm. wide, reticulate with 50 to 75 reticulations.

TYPE LOCALITY: Along the Magdalena River, near El Peñón, Colombia.

ILLUSTRATIONS: Bot. Mag. 130: *pl. 7936;* Mart. Fl. Bras. 13, pt. 1: *pl. 121;* Garden 1880: 142; Mutis, Icon. Pl. Ined. 26: *pl. 10, 35;* Gard. Chron. III. 8: 213. 1890; III. 43: 187. *f. 78.* 1908.

DISTRIBUTION: Nicaragua to eastern and southern Venezuela, Colombia, eastern Ecuador, and northern Peru, at low elevations; occasionally cultivated in the West Indies.

NICARAGUA: La Baranta, *Oersted 4144* (Cop). Braggmans Bluff, *Englesing 139* (N). San Juan del Norte, *C. L. Smith 47* (G). Chontales, *Lévy 1431* (P); *R. Tate 113* (K), *114* (BM). Cabo Gracias a Dios, *Schramm* in 1923 (N). Mosquito Coast, *Schramm* in 1924 (N).

COSTA RICA: *Pittier 3517* (Bo, Brux, N), *6585* (Brux), *7042* (Brux), *7406* (Brux), *8655* (Brux), *9595* (Brux). Guanacaste, *Brade 2407* (B). Río Surubres, *Brade 2567* (B), *2582* (B). Tortuga, *Oersted 4145* (Cop). Comarca de Limón, *J. D. Smith 4810* (G, N). Santo Domingo de Golfo Dulce, *Tonduz 7030* (N). Las Vueltas, Tucurrique,

Tonduz 13003 (B, BM, Bo, N, P). Turrialba, *Lehmann 1268* (Bo, K). Cañas Gordas, *Pittier 11182* (N). Atirro, *J. D. Smith 4811* (F, G, N). Pejivalle, *Standley & Valerio 47172* (N). Talamanca, *Tonduz 8655* (N), *9324* (Bo, Brux, N). La Colombiana Farm, *Standley 36958* (N). Guápiles, *Standley 37186* (N), *37314* (N). El Arenal, *Standley & Valerio 45038* (N), *45158* (N). Naranjos Agrios, *Standley & Valerio 46497* (N). Tilarán, *Standley & Valerio 45874* (N). Puerto Jiménez, *Cufodontis 193* (V). Finca Montecristo, *Standley & Valerio 48549* (N). Sixaola, *Dunlap 474* (N). El General, *Skutch 2617* (N). Bananito, *Stork 1197* (Mich).

PANAMA: *Cuming* in 1832 (BM); *Seemann 502* (BM); *Duchassaing* (P, type of *P. serrulata* var. *pubescens*). Marraganti, *R. S. Williams 1150* (Y).—Bocas del Toro: *Carleton 118* (N). Changuinola Valley, *Dunlap 526* (N).—Chiriquí: *Hart* (K). Veragua, *Warscewicz 2* (Bo), *227* (B).—Canal Zone: *Hayes* in 1860 (G, Y); *Fendler 118* (F, G, K, N, P, V); *Pittier 2517* (N), *2668* (N); *Standley 27308* (N), *28702* (N), *29569* (N), *30225* (N), *30947* (N), *31280* (N); *Killip 3385* (Roch); *Cowell 42* (Y); *Crawford 463* (Ph, Y), *528* (Cal, Ph); *Piper 5519* (N, Y), *5835* (N); *Greenman & Greenman 220* (Mo); *Bailey & Bailey 108* (N), *221* (N); *Barclay 989* (BM).—Panama: Tapia River, *Maxon 6678* (N), *6683* (N), *6695* (N), *6733* (Gen, N, P); *Standley 28101* (N), *30605* (N). Tecumen River, *Killip 3313* (N, Roch); *Standley 29362* (N). Orange River, *Killip 3335* (N, Roch). Pacora, *Paul 292* (N). — Colón: Porto Bello, *Billberg* in 1826 (S).

CUBA: Santa Clara: Soledad, cultivated, *Jack 7648* (N).

JAMAICA (cultivated): Hope Gardens, *Perkins 25* (B), *1449* (B). Kingston, *Maxon & Killip 1733* (N).

VENEZUELA: Río Orinoco, *Humboldt & Bonpland* (BW, perhaps type of *P. vitifolia* var. *cassiquiarensis*); *Rusby & Squires 4* (BM, F, G, Minn, N, Y).—Amazonas: Tamatama, Río Orinoco, *Holt & Gehriger 267* (N). Brazo Cassiquiare, *Holt & Blake 650* (N), *675* (N).

COLOMBIA: *Mutis 3462* (Ma, N).—Goajira: Santa Clara, *Linden 1652* (Gen, P).—Magdalena: El Peñón, *Humboldt & Bonpland 1531* (B, type). Río Magdalena, *Stübel 106a* (B); *Dawe 443* (K, N). Santa Marta, *H. H. Smith 1530* (B, BM, Brux, CM, F, G, Gen, K, N, P, Ph, S, Ut, Y); *Schultze 550* (B). Naranjo, *André 270* (K). Puerto Nacional, *André 234* (K).—Bolívar: Río Sinú, *Pennell 4625* (Y). Turbaco, *Schott 1* (Y).—Santander: *Kalbreyer 675* (B, K). Puerto Wilches, *Killip & Smith 14739* (A, G, N, Y). Barranca Bermeja, *Niemeyer 5* (N). Río Magdalena, *Goudot* (P). El Centro, *Haught*

1262 (N).—Boyacá: Mt. Chapón, *Lawrance 607* (Gen, S, Ut, Y).—Cundinamarca: Guaduas, *Lévy* in 1851 (P). Villeta, *Karsten* (B, V, type of *P. servitensis*). Tena, *Triana 2941* (BM, Gen, HNC).—Meta: Villavicencio, *Pennell 1548* (N, Y). Llano de San Martín, *Triana 2940* (BM, HNC, K, P).—Caquetá: Florencia, *Pérez 747* (N).—Tolima: Líbano, *Pennell 3387* (Y). Melgar, *Dawe* in 1919 (K).—Antioquia: Puerto Berrio, *Archer 1436* (N); *Toro 1116* (Y). Turbo, *Schott* (F).—El Chocó: Quibdó, *Archer 2167* (N), *2217* (N).—El Valle: Cisneros, *Killip 11462* (G, N). Buenaventura, *Lehmann 881* (B, Bo, K). Río Dagua, *Lehmann XII* (Bo), *1923* (Bo).

ECUADOR: Napo-Pastaza: Zatzayacu, *Mexia 7117* (N).

PERU: *Ruiz & Pavón* (BM, type of *P. punicea*).—San Martín: Juanjuí, Alto Río Huallaga, *Klug 4190* (N).

This is the only species of *Distephana* in Central America and northwestern South America, and its brilliant scarlet flowers are conspicuous in the tropical forests. It has symmetrically 3-lobed leaves, only the sterile young shoots having unlobed leaves. The flowers, at least in a dried state, show little difference from those of *P. quadriglandulosa*, but the latter species has a much scantier indument and the leaves show a great degree of dimorphism. The leaves, bracts, and indument of the specimens cited above vary but slightly. The type of *P. servitensis* var. *bracteosa*, however, has large, oval bracts, and this may be considered a variety of *P. vitifolia*.

Passiflora vitifolia is known from Peru from only two collections, one the type of *P. punicea* R. & P., the other a fine series of specimens recently obtained by Mr. Klug in the Huallaga Valley. In this material the teeth of the leaves are less prominent and the bracts are ovate rather than oblong or oblong-lanceolate; otherwise it seems to differ in no way from specimens from farther northward.

Masters cites several Brazilian specimens as *P. vitifolia;* those which I have seen, however, are better referred to *P. speciosa*, and the others perhaps belong also to that species or to *P. quadriglandulosa*.

LOCAL NAMES: "Guate-guate" (Panama); "curuvito," "granadilla" (Colombia).

187a. **Passiflora vitifolia** var. **bracteosa** (Karst.) Killip, comb. nov.

Passiflora servitensis var. *bracteosa* Karst. Fl. Columb. 1: 103. *pl. 51*. 1858–61.

Bracts broadly ovate, 2.5 to 3 cm. long, 1.6 to 2 cm. wide, ciliate and glandular at margin.

TYPE LOCALITY: "In cordillera Meridensi, reipublicae Venezuela."

DISTRIBUTION: Known only from the type locality.

VENEZUELA: Mérida: Sardineta, *Karsten* (V, type of *P. servitensis* var. *bracteosa*).

188. **Passiflora speciosa** Gardn. in Fielding & Gardn. Sert. Pl. *pl. 17*. 1844.

Plant ferruginous-villosulous-tomentose nearly throughout; stem terete, striate; stipules setaceous, 4 to 5 mm. long, deciduous; petioles 1.5 to 2 cm. long, obsoletely 4-glandular, the glands imbedded in the tomentum; leaves 3-lobed one-half to seven-eighths their length (lobes linear-oblong to broadly ovate-oblong, more rarely linear, 4 to 12 cm. long, 0.7 to 5 cm. wide, obtuse, acute, or acuminate, singly or doubly crenate-denticulate), rounded, subtruncate, or cordulate at base, membranous, grayish- or ferruginous-pilosulous-tomentose beneath, especially on nerves and veins; peduncles 7 to 12 cm. long, terete, stout; bracts oblong, 3.5 to 4 cm. long, 0.8 to 1 cm. wide, acute, conspicuously 2–4-glandular at base, minutely glandular-serrulate toward apex, dull red; flowers bright red, scarlet, or crimson; calyx tube cylindric-campanulate, 7 to 10 mm. long, about 8 mm. wide, tomentulous without; sepals oblong, 4 to 5 cm. long, 0.8 to 1.3 cm. wide, obtuse, slightly carinate, the keel terminating in an awn 3 to 5 mm. long; petals oblong-lanceolate, subequal to the sepals; corona in 2 ranks, the outer filamentose to base, the filaments awl-shaped, about 1.5 cm. long, purple-banded, the inner rank filamentose to below middle, about 0.8 cm. long; operculum dependent, the margin recurved, crenulate or denticulate; ovary ovoid, densely sericeo-villosulous; fruit ovoid, about 6 cm. long and 2.5 cm. in diameter, minutely villosulous; seeds strongly compressed, about 5 mm. long and 3 mm. wide, minutely reticulate.

TYPE LOCALITY: Organ Mountains, Brazil.

ILLUSTRATIONS: Fielding & Gardn. Sert. Pl. *pl. 17;* Mart. Fl. Bras. 13, pt. 1: *pl. 120*.

DISTRIBUTION: East-central Brazil.

BRAZIL: *Sello 2132* (B, K), *2150* (B). Serra da Piedade, *Warming 1175* (Cop, P). Serra da Mantiqueira, *Warming 1171* (Cop), *1185* (Cop).—Matto Grosso: *Weddell 3395* (P). Rio Paraguay, *Moore 498* (BM, Y), *824* (BM). Santa Cruz da Barra, *Lindman A2825* (S). Cuyabá, *Malme* in 1902 (S), in 1903 (S).—Minas Geraes: *Gardner*

4691 (B, BM, Gen, K, V); *Claussen 379* (Gen, P), *380* (P); *St. Hilaire 590* (P). Itambé, *Pohl 923* (K). Araponga, 1,000 meters, *Bailey & Bailey 1156* (N). Viçosa, 650 meters, *Chase 10201* (N), *10216* (N); *Mexia 4138* (Gen, N), *4795* (N); *Rolfs* in 1928 (N). Santa Izabel, *Barreto 875* (N). Serra do Caraca, *Barreto 887* (N). Fazenda da Cachoeira, *Barreto 1522* (N). Fazenda Vargem Alegre, *Barreto 1604* (N).—Rio de Janeiro: Organ Mountains, *Gardner 426* (BM, type, Gen); *Glaziou 1598* (Brux, Cop, P); *Miers* (BM). Cantagallo, *Peckolt 253* (V), *396* (Brux). Itambe, *Pohl & Schott 3588* (V).

Passiflora speciosa is very similar to *P. vitifolia*, and the two species may be distinguished from each other only with considerable difficulty.

LOCAL NAME: "Murucuja incarnada."

Subgenus XVI. CALOPATHANTHUS

189. **Passiflora racemosa** Brot. Trans. Linn. Soc. 12: 71. *pl. 6.* 1817.

Passiflora princeps Lodd. Bot. Cab. 1: *pl. 84.* 1817.

Plant glabrous throughout; stem subquadrangular, the older parts cinereous, corrugate, the younger light green, striate; stipules broadly ovate, 1 to 1.5 cm. long, 0.7 to 1 cm. wide, acute and mucronulate at apex, rounded at base, oblique, membranous or subcoriaceous, deciduous; petioles 2 to 4 cm. long, slender, biglandular, the glands sessile; leaves polymorphic, ovate and unlobed, asymmetrically lobed on one side, or usually symmetrically 3-lobed to below middle (6 to 10 cm. along midnerve, 4 to 8 cm. along lateral nerves, 6 to 11 cm. between apices of lateral lobes; lobes oblong, 2 to 3 cm. wide, acute or subobtuse, often biglandular at the sinuses), subpeltate, truncate or cordate at base, entire, 5-nerved, coriaceous; inflorescence pseudoracemose, the pedicels about 1 cm. long, articulate, solitary or in pairs on elongate (50 to 75 cm. long) stipule-bearing, reflexed, terete branches, which are leafless or bear much reduced leaves; bracts setaceous(?), soon deciduous; calyx tube short-cylindric, 0.8 to 1.5 cm. long, 0.7 to 1.2 cm. wide, sulcate at base, reddish purple at throat without (when dry); sepals oblong, 3.5 to 4 cm. long, up to 1 cm. wide, cucullate, carinate, corniculate, red; petals oblong, slightly shorter than sepals, obtuse, reddish (or white?); corona in 3 series, each filamentose to base, the outer 2 ranks at throat of tube 3 to 5 mm. long, the innermost slightly below, 2.5 to 3 mm. long; operculum borne at side of tube just above base, the lower part horizontally spreading inward for about 2 mm.,

then abruptly recurved, the main portion erect, tubular, about 1 cm. long, denticulate; limen none; ovary narrowly ovoid; fruit narrowly ovoid, 5 to 7 cm. long, 1.5 to 3 cm. wide, obtuse at apex, the exocarp coriaceous; the seeds are obovate, about 5 mm. long, 3.5 mm. wide, reticulate.

TYPE LOCALITY: Type cultivated, probably of Brazilian origin.

ILLUSTRATIONS: Lodd. Bot. Cab. 1: *pl. 84;* Trans. Linn. Soc. 12: *pl. 6;* 27: *pl. 64;* Bot. Reg. 4: *pl. 285;* Bot. Mag. 45: *pl. 2001;* Vell. Fl. Flumin. 9: *pl. 93;* Mart. Fl. Bras. 13, pt. 1: *pl. 125;* Nicholson, Ill. Dict. Gard. 3: 32. *f. 36.*

DISTRIBUTION: State of Rio de Janeiro, Brazil. Introduced into European horticulture.

BRAZIL: Rio de Janeiro: Rio de Janeiro, *Riedel 717* (N); *Weddell 161* (Gen); *Glaziou 3655* (Brux), *3992* (Cop, P); *Warming 1165* (Cop); *Pettiers 3041* (Gen); *Gardner 1147* (BM); *Miers 3041* (BM, K); *Gaudichaud 1032* (Gen, P); *Pohl 921* (K, V); *St. Hilaire 1811* (P); *Martius* (B); *Bowie & Cunningham 97* (BM). Corcovado, *Patschke 26* (B); *Rose & Russell 20231* (N, Y); *Mosén 2503* (S); *Widgren 921* (S). Tijuca, *Schwarz* (V). Cabo Frio, *Chase 10125* (N). Morro do Canvallão, *Smith & Brade* (*L. B. Smith 2341;* G). Sumidorio, *Langsdorff* (N).

Harms has created the section (here subgenus) *Calopathanthus* for this species because of the unique shape of the operculum, at first spreading inward, then curved back, finally erect, forming a cylindric tube.

In most of the specimens here cited the leaves are all three-lobed, though in a few instances some are entire; in *Chase 10115* all the leaves are entire.

Passiflora racemosa is one of the most showy of passionflowers, and has been frequently introduced into cultivation, where it has often been known as *P. princeps.* Both names were proposed in 1817 and there is uncertainty as to which was the earlier. As the name *P. racemosa* has generally been used in taxonomic treatments, I am retaining it.

Horticultural hybrids have been developed between *P. racemosa* and other species, to which names have been assigned, as *P. atropurpurea* and *P. Loudoni* (*P. racemosa*×*P. kermesina?*), *P. Lawsoniana* (*P. racemosa*×*P. alata*), and *P. Paxtoni. Passiflora amabilis* is said to be a hybrid between *P. racemosa* and *P. alata.*

Subgenus XVII. TACSONIOIDES

190. **Passiflora Luetzelburgii** Harms, Repert. Sp. Nov. 19: 32. 1923.

Plant more or less villosulous throughout; stem subterete; stipules linear or filiform, deciduous; petioles 3 to 8 mm. long, minutely biglandular at or below middle; leaves 4 to 5 cm. long, 2 to 4 cm. wide, entire and oblong or ovate, or with a pair of obsolete lateral lobes, rounded or obtuse, mucronulate or slightly emarginate at apex, rounded and often emarginate at base, conspicuously penni-nerved (nerves impressed above), short-pilose above, densely villosulous beneath; peduncles 2 to 2.5 cm. long; bracts lanceolate-oblong or oblong, 1 to 1.5 cm. long, 0.5 to 0.7 cm. wide, lacerate-pectinate, villosulous; calyx tube broadly cylindric, 1.5 to 2 cm. long, about 1 cm. wide at throat, slightly dilated at base; sepals oblong-lanceolate, 2 to 2.5 cm. long, slightly cucullate and pilosulous at apex, corniculate; petals lanceolate-oblong(?); corona filamentose, 3-ranked, the filaments 4 to 7 mm., 1 to 1.5 mm., and about 2 mm. long, respectively; operculum membranous, erect; ovary narrowly ovoid, glabrous.

TYPE LOCALITY: Piauhy, Brazil (type in Munich Herbarium).

DISTRIBUTION: Known only from the type locality, in eastern Brazil.

BRAZIL: Piauhy: *Luetzelburg 1681* (B, fragment and a sketch of type).

Doubtless this species belongs to the subgenus *Tacsonioides*, as Harms suggests, but it differs greatly from the four other known species of that group. The stipules are setaceous and the plant is densely villosulous. The leaves are wholly unlike those of its near relatives, resembling, in a general way, those of *P. holosericea*.

191. **Passiflora reflexiflora** Cav. Icon. Pl. 5: 15. *pl. 425*. 1799.

Tacsonia reflexiflora Juss. Ann. Mus. Hist. Nat. 6: 393. 1805.

Passiflora reflexa J. E. Sm. in Rees, Cycl. *Passiflora* No. 35. 1819.

Erndelia reflexiflora Raf. Fl. Tellur. 4: 104. 1838.

Tacsonia laevis Benth. Pl. Hartw. 118. 1843.

Passiflora hastata Ruiz & Pav. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 569. 1872, as synonym. Not *P. hastata* Bertol.

Passiflora lorifera Mast. Journ. Linn. Soc. 20: 42. *pl. 20, f. 4*. 1883, as to foliage. (For status of *Passiflora lorifera* see discussion under *P. macrophylla*.)

Plant essentially glabrous throughout; stem slender, terete, the younger portions usually subangular; stipules semi-ovate, 1 to 3 cm. long, 0.5 to 1.5 cm. wide, obtuse, mucronulate, rounded at base, entire or slightly crenulate, glabrous or minutely pubescent above; petioles very slender, up to 1.5 cm. long, 4–6-glandular (glands stipitate, about 1 mm. long); leaves 3 to 5 cm. long, 4 to 6 cm. wide, hastately 3-lobed (lobes obtuse, the middle 1.5 to 3 cm. wide, about twice as long as the lateral lobes), cordate at base, entire or remotely serrulate; peduncles up to 6.5 cm. long; bracts ovate, 1 to 1.2 cm. long, 8 to 10 mm. wide, rounded at apex, acutish at base, sessile; flowers crimson or red; calyx tube narrowly cylindric, 2 to 2.5 cm. long, uniformly about 5 mm. wide, slightly enlarged at base, glabrous; sepals linear-lanceolate or lanceolate, 2.5 to 3 cm. long, 6 to 8 mm. wide, cucullate, minutely corniculate, reflexed; petals linear, 2 to 2.5 cm. long, 4 to 5 mm. wide, reflexed; corona in 3 series, short-filamentose, the outer (upper) filaments about 2 mm. long, the succeeding shorter; operculum borne about 2 mm. above base of tube, erect, membranous, 1.5 to 2 mm. high, minutely crenulate at margin, white; limen membranous, 5 mm. high, adnate to gynophore, slightly sulcate, the margin free; ovary ovoid, glabrous; fruit ovoid, about 6 cm. long, 4.5 cm. wide, the exocarp brittle, yellowish(?); seeds subturbinate, 6 to 7 mm. long, 3 to 4 mm. wide, tridentate at apex (middle tooth longest), narrowed at base, coarsely reticulate.

TYPE LOCALITY: Near Bodegas, on road to Guayaquil, Ecuador. (The first locality mentioned by Cavanilles is "Panamaide" [Panama], another instance of a confusion in Née's locality data.)

ILLUSTRATIONS: Cav. Icon. Pl. 5: *pl. 425;* Journ. Linn. Soc. 20: *pl. 20, f. 4.*

DISTRIBUTION: Probably confined to coastal region of Ecuador.

ECUADOR: *Warscewicz* (B); *Fraser* (BM); *Couthouy* in 1859 (G).—Guayas: Guayaquil, *Née* (Ma, type); *Hartweg 662* (K, type of *Tacsonia laevis*); *Sinclair* (K); *Brenning 233* (B); *Barclay 2458* (BM); *Stevens 19* (N); *Lehmann 105* (B, Bo, K, N, cited by Masters as *P. aristulata*); *Rose 22110* (N); *Hitchcock 20149* (G, N); *Rowlee & Mixter 1097* (N); *Mille 7* (N), *50* (N); *Heilborn 582* (B, S); *Andersson 124* (S); *André 4034bis* (K); *Ruiz & Pavón* (BM, Gen, Ma); *Haenke 2285* (Pr); *Mexia 6764* (N); *Jameson* (V). Río Guayas, *André 4068* (K).

This is one of the species that has been placed at various positions in taxonomic treatments of *Passiflora.* Masters referred it to *Granadilla,* ignoring De Candolle's section *Tacsonioides,* of which it was

the type species. The relatively long calyx tube, subequal to the sepals, is characteristic of *Tacsonia*, not of *Granadilla*, but the erect operculum and the 3-ranked corona at once eliminate it from *Tacsonia*. In certain respects the group approaches *Pseudomurucuja*.

I believe that this is a species of very local distribution, confined to the region about Guayaquil, Ecuador. Masters gives (in Mart. Fl. Bras. 13, pt. 1: 569) four extra-Ecuadorean localities as follows: (1) Guatemala, *Hartweg* 662, which is the type of *Tacsonia laevis*, and which according to Bentham came from Guayaquil; (2) Peru, *Ruiz & Pavón;* the label on the sheet at Geneva reads "Nueva España"; on that at the British Museum "Peru, prob. Ecuador"; and on that in the Ruiz and Pavón Herbarium at Madrid, "Guayaquil"; (3) Tarapoto, Peru, *Spruce 3923;* this is true *P. tarapotina;* (4) Maynas, Peru, *Poeppig.* This specimen, which I have seen at Vienna, is also *P. tarapotina.*

LOCAL NAME: "Norvo."

192. **Passiflora tarapotina** Harms, Verh. Bot. Verein. Brandenburg 48: 185. 1906.

(?)*Tacsonia glauca* Poepp. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 569. 1872, as synonym.

Plant glabrous throughout; stem slender, wiry, subterete; stipules semi-ovate, up to 2.5 cm. long, 1 cm. wide, mucronulate, rounded at base, remotely glandular-serrulate; petioles 2.5 to 4 cm. long, wiry, biglandular near middle, the glands minute, stipitate; leaves 6 to 8 cm. long, 9 to 10 cm. wide, 3-lobed to below middle (lobes oblong, 2.5 to 3 cm. wide, obtuse or acutish, mucronulate at apex, the sides nearly parallel, the lateral lobes ascending), subpeltate, subtruncate or cordulate at base, 5-nerved, entire, membranous, or subcoriaceous, glaucous beneath; peduncles 10 to 16 cm. long, slender; bracts narrowly oblong to ovate-oblong, 10 to 15 mm. long, 2 to 6 mm. wide, acute at apex, narrowed at base, serrulate, membranous; flowers "rose-purplish"; calyx tube cylindric, 2 to 2.5 cm. long; sepals linear-oblong, subequal to tube, cucullate, slightly carinate, the keel terminating in a foliaceous awn about 1 cm. long; corona in 3 or 4 closely approximate ranks, each filamentose, the filaments barely 1 mm. long, those of the upper 2 ranks erect, those of the lowest reflexed; operculum borne about 5 mm. above base of tube, about 8 mm. long, erect, filamentose half its length; limen membranous, about 7 mm. high, closely adnate to gynophore, denticulate, glabrous.

TYPE LOCALITY: Tarapoto, Peru.

DISTRIBUTION: Northern Peru.

PERU: San Martín: Tarapoto, *Spruce 3923* (K, V); *Ule 6462* (B, type, Gen, Go, K); *L. Williams 5418* (N), *5555* (N), *5709* (F), *5776* (N).—Loreto: Juanjay, Province of Mainas, *Poeppig* in 1830 (V, type of *Tacsonia glauca*).

The leaves and stipules are much like those of *P. aristulata*, *P. subulata*, and *P. subpeltata*, of *Granadilla*, series *Lobatae*. The large flowers, with a developed, cylindric calyx tube at once distinguish it from these.

193. **Passiflora umbilicata** (Griseb.) Harms in Engl. & Prantl, Pflanzenfam. 3, 6a: 91. 1893.

Tacsonia umbilicata Griseb. Abh. Ges. Wiss. Göttingen 19: 149. 1874.

Passiflora ianthina Mast. Journ. Bot. Brit. & For. 21: 36. 1883.

Plant glabrous throughout; stem subterete, striate; stipules semi-ovate, 1 to 2 cm. long, 0.5 to 1 cm. wide, mucronate, glandular-crenate-serrate; petioles up to 3.5 cm. long, slender, wiry, glandless or minutely biglandular at middle; leaves 2 to 6 cm. long, 3.5 to 7.5 cm. wide, 3-lobed to or to slightly below middle (lobes oblong-ovate, 1 to 2.5 cm. wide, rounded or acutish at apex, mucronulate), cordulate, 5–7-nerved, entire or slightly undulate, subcoriaceous, hyaline at margin; peduncles up to 9 cm. long, stout, terete; bracts cordate-ovate, 1.5 to 3 cm. long, 1.3 to 2 cm. wide, rounded or subacute, crenate-serrate, membranous, purple or reddish purple; flowers reddish purple, violet, or dark blue; calyx tube cylindric, 1.5 to 3.5 cm. long, 0.4 to 0.9 cm. wide, subequaling or shorter than sepals, sulcate at base; sepals linear-oblong, 2 to 3 cm. long, 0.4 to 0.6 cm. wide, cucullate, carinate, the keel terminating in a foliaceous awn about 5 mm. long; petals linear-oblong, subequal to sepals, obtuse; corona filamentose, the filaments in about 5 series, the outermost 3 to 4 mm. long, the succeeding 3 series barely 1 mm., the innermost 2 to 3 mm.; operculum borne about 2 mm. above base of tube, erect, about 3 mm. long, subentire; limen none; gynophore very slender, swollen at base; fruit ovoid, 6 to 7 cm. long, about 4 cm. in diameter, the exocarp coriaceous, yellowish; seeds oblong-obovate, about 5 mm. long, 4 mm. wide, shallowly tridentate at truncate apex, coarsely reticulate.

TYPE LOCALITY: Catamarca, Argentina.

ILLUSTRATION: Engl. & Prantl, Pflanzenfam. ed. 2, 21: 505. *f. 233, C, D.*

DISTRIBUTION: Central Bolivia to northern Argentina, 2,500 to 3,000 meters altitude.

BOLIVIA: *Bridges* (BM, type of *P. ianthina*); *Cuming 202* (V). Micani Region, *Cárdenas 3397* (N).—La Paz: South Yungas, *Kuntze* in 1892 (Y). Ocubi, *Kuntze* in 1892 (Y).—Cochabamba: Capachuncho, *Steinbach 8635* (Gen, K, Mo, Ut, Y).—Tarija: Tucumilla, *Fiebrig 2454* (B, BM, G, Gen, K, N, P, S, Ut, V, Y).—Chuquisacá: Province of Tomina, *Weddell* (P).

PARAGUAY: La Playa, *Jörgensen 1211* (Cal, G, N).

ARGENTINA: Sierra Velasco, *Hieronymus & Niederlein 59* (B).—Jujuy: La Soledad, *Venturi 9011* (N). Tileara, *Venturi 9218* (N).—Salta: Yacone, *Hieronymus & Lorentz 294* (B).—Catamarca: *Lorentz 105b* (B, type); *Schickendantz 113* (B). Alto de Toma, *Schickendantz 46* (B).

Harms places this species in a section *Umbilicatae* of *Tacsonia*, but certainly its relationship is with *P. reflexiflora* and *P. tarapotina*, rather than with the tacsonias. The foliage, as well as the general flower structure, is very similar to that of *P. tarapotina*.

In Weddell's specimen from Bolivia the calyx tube is slightly shorter than the sepals, but otherwise the specimen agrees well with the other material here cited.

LOCAL NAME: "Locosti" (Bolivia).

194. **Passiflora Mendoncaei** Harms, Repert. Sp. Nov. 18: 297. 1922.

Passiflora rhodoptera Dusén ex Harms, Notizbl. 10: 819. 1929, as synonym.

Plant glabrous throughout; stem slender, terete; stipules oblong-lanceolate or oblong, 1 to 1.5 cm. long, 0.5 to 0.8 cm. wide, acutish, mucronulate, oblique; petioles 1 to 2 cm. long, minutely biglandular at middle or with 2 additional glands above middle; leaves 3 to 5 cm. long, 3.5 to 7 cm. wide, 3-lobed one-quarter to one-third their length (lobes broadly ovate, 1.5 to 2 cm. wide, obtuse or rounded at apex), subpeltate, rounded or subtruncate at base, 3–5-nerved, membranous, sublustrous above, glaucous or violet beneath; peduncles 5 to 10 cm. long, slender; bracts ovate-oblong, 3 to 4 cm. long, 1.5 to 2.5 cm. wide, rounded and apiculate at apex, narrowed at base, free, membranous, reddish purple; calyx tube cylindric, 1.5 to 2 cm. long, 1 cm. wide; sepals linear-lanceolate, 3 to 4 cm. long, 6 to 8 mm. wide, cucullate, corniculate, the horn terminating in an awn about 2 mm.

long; petals subequal to sepals; corona in 2 series, filamentose, the outer filaments 4 to 5 mm. long, the inner 2 to 3 mm. long; operculum membranous, erect, fimbriate; limen cupuliform, closely surrounding base of gynophore; ovary narrowly ovoid, glabrous.

TYPE LOCALITY: São Paulo, Brazil.

DISTRIBUTION: Southern Brazil.

BRAZIL: São Paulo: *Mendonça 458* (B, type).—Paraná: Carvalho, 1,050 meters, *Dusén 13320* (Gen, S), *13328* (S). Caiguava, 1,300 meters, *Dusén 8963* (BM, K, N, S).

The leaves and stipules of *P. Mendoncaei* and *P. elegans* are very similar, but the former species has a cylindric calyx and long peduncles, whereas in *P. elegans* the tube is campanulate and the peduncles are barely 1 cm. long.

Harms originally placed this in *Granadilla*, remarking that it was one of the species intermediate between that group and *Tacsonia*. However, it is better placed in *Tacsonioides*.

THE LIBRARY OF THE
APR 11 1938
UNIVERSITY OF ILLINOIS

UNIVERSITY OF ILLINOIS-URBANA
3 0112 018132156